

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E RMT-708

SERVICE MANUAL

Self Diagnosis
Supported model

Ver 1.0 2000. 01

Handycam
Handycam Vision™
video 8 XR
video Hi8
video Hi8 XR
InfoLITHIUM™ **L**
SERIES

B201 MECHANISM



Photo : CCD-TRV87E

AEP Model
East European Model
North European Model
Russian Model
CCD-TR417E/TR427E/TR617E/TR717E/
TR918E/TRV37E/TRV48E/TRV57E/
TRV67E/TRV87E
UK Model
CCD-TR417E/TR427E/TR717E/
TR918E/TRV37E/TRV48E/
TRV57E/TRV67E/TRV87E
E Model
Hong Kong Model
Australian Model
Chinese Model
CCD-TR317E/TRV47E/TRV57E/
TRV67E/TRV87E
Tourist Model
CCD-TRV47E/TRV57E/TRV67E/TRV87E

For MECHANISM ADJUSTMENT, refer to
the "8mm Video MECHANICAL
ADJUSTMENT MANUAL VII" (9-973-801-11).

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8mm video format cassette
CCD-TR317E/TR417E/TR427E/
TR617E/TRV37E/TRV47E/
TRV48E/TRV57E:
Standard 8
CCD-TR717E/TR918E/TRV67E/
TRV87E: Hi8 or standard 8
**Recording/playback time (using
90 min. cassette)**
SP mode: 1 hour and 30 minutes
LP mode: 3 hours
**Fastforward/rewind time (using
90 min. cassette)**
Approx. 5 min.
Viewfinder
Electric viewfinder (monochrome)
Image device
CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E:
1/6 inch CCD (Charge Coupled
Device)
CCD-TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E:
1/4 inch CCD (Charge Coupled
Device)

CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E:
Approx. 320,000 pixels
(Effective: Approx. 290,000 pixels)
CCD-TR617E/TR717E/TRV57E/
TRV67E:
Approx. 380,000 pixels
(Effective: Approx. 230,000 pixels)
CCD-TR918E/TRV87E:
Approx. 570,000 pixels
(Effective: Approx. 360,000 pixels)
Lens
Combined power zoom lens
Filter diameter 37 mm (1 7/16 in.)
CCD-TR317E/TRV47E:
20× (Optical), 200× (Digital)
CCD-TRV57E: E, HK, AUS, CN, JE/
TRV67E: E, HK, AUS, CN, JE/
TRV87E: E, HK, AUS, CN, JE:
20× (Optical), 360× (Digital)
CCD-TR417E/TRV37E:
20× (Optical), 40× (Digital)
CCD-TR427E/TR617E/TR717E/
TR918E/TRV48E/TRV57E: AEP, UK,
EE, NE, RU/TRV67E: AEP, UK, EE,
NE, RU/TRV87E: AEP, UK, EE, NE,
RU:
20× (Optical), 80× (Digital)
* 240× in some areas
** 360× in some areas

Focal length
3.6 - 72 mm (5/32 - 2 7/8 in.)
When converted to a 35 mm still
camera
CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E:
51.8 - 1036 mm (2 - 40 6/8 in.)
CCD-TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E:
41 - 820 mm (1 5/8 - 32 3/8 in.)
Colour temperature
Auto
Minimum illumination
CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E:
1 lux (F 1.4)
CCD-TR617E/TR717E/TRV57E/
TRV67E:
0.3 lux (F 1.4)
CCD-TR918E:
0.7 lux (F 1.4)
CCD-TRV87E:
0.6 lux (F 1.4)
0 lux (in the NightShot mode)***
*** Objects unable to be seen due to
the dark can be shot with
infrared lighting.

Input/output connectors

**S video input (CCD-TRV87E:
E, HK, AUS, CN, JE only)/
output (CCD-TR717E/TR918E/
TRV67E/TRV87E only)**
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms,
unbalanced
Chrominance signal: 0.3 Vp-p,
75 ohms, unbalanced
Video output
Phono jack, 1 Vp-p, 75 ohms,
unbalanced
**Audio input (CCD-TRV87E:
E, HK, AUS, CN, JE only)/output**
CCD-TR317E/TR417E/TR427E/
TR617E/TR717E/TRV37E/TRV47E/
TRV48E/TRV57E/TRV67E:
Monaural, phone jack, 327 mV
CCD-TR918E/TRV87E:
Phono jacks (2: stereo L and R)
327 mV, (at output impedance
47 kilohms) impedance less than
2.2 kilohms
RFU DC OUT
Special minijack, DC 5V

— Continued on next page —

8 VIDEO CAMERA RECORDER

CCD-TR317E/TR417E/TR427E/TR617E/
TRV37E/TRV47E/TRV48E/TRV57E

Hi 8 VIDEO CAMERA RECORDER

CCD-TR717E/TR918E/TRV67E/TRV87E



Headphone jack (CCD-TRV87E only)

Stereo minijack (ø 3.5 mm)

Earphone jack (CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E only)

Monaural minijack (ø 3.5 mm)

LANC control jack

Stereo mini-minijack (ø 2.5 mm)

MIC jack

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E:

Monaural minijack (ø 3.5 mm)

CCD-TR918E/TRV87E:

Stereo minijack (ø 3.5 mm)

LCD screen

Picture

2.5 inches measured diagonally

50.3 × 37.4 mm (2 × 1 1/2 in.)

Total dot number

61,600 (280 × 220)

General

Power requirements

7.2 V (battery pack)

8.4 V (AC power adaptor)

Average power consumption (when using the battery pack)

During camera recording using CCD-TR317E/TR417E/TR427E/TR617E/TR717E: 2.3 W

CCD-TR918E: 2.4 W

LCD

CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E: 2.7 W

CCD-TRV87E: 2.8 W

Viewfinder

CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E: 2.3 W

CCD-TRV87E: 2.4 W

Operating temperature

0 °C to 40 °C (32 °F to 104 °F)

Storage temperature

-20 °C to +60 °C (-4 °F to +140 °F)

Dimensions (approx.)

102 × 106 × 212 mm

(4 1/8 × 4 1/4 × 8 3/8 in.) (w/h/d)

Mass (approx.)

CCD-TR317E:

740 g (1 lb 10 oz)

CCD-TR417E/TR427E:

750 g (1 lb 10 oz)

CCD-TR617E/TR717E/TR918E:

770 g (1 lb 11 oz)

CCD-TRV37E/TRV48E:

840 g (1 lb 13 oz)

CCD-TRV57E/TRV67E/TRV87E:

860 g (1 lb 14 oz)

excluding the battery pack, lithium battery, cassette and shoulder strap

CCD-TR317E:

880 g (1 lb 15 oz)

CCD-TR417E/TR427E:

890 g (1 lb 15 oz)

CCD-TR617E/TR717E/TR918E:

910 g (2 lb)

CCD-TRV47E:

970 g (2 lb)

CCD-TRV37E/TRV48E:

980 g (2 lb 2 oz)

CCD-TRV57E/TRV67E/TRV87E:

1.0 kg (2 lb 3 oz)

including the battery pack

NP-F330, lithium battery CR2025,

cassette and shoulder strap

Supplied accessories

See page 2.

AC power adaptor

Power requirements

100 - 240 V AC, 50/60 Hz

Power consumption

23 W

Output voltage

DC OUT: 8.4 V, 1.5 A in operating mode

Operating temperature

0 °C to 40 °C (32 °F to 104 °F)

Storage temperature

-20 °C to +60 °C (-4 °F to +140 °F)

Dimensions (approx.)

125 × 39 × 62 mm

(5 × 1 9/16 × 2 1/2 in.) (w/h/d)

excluding projecting parts

Mass (approx.)

280 g (9.8 oz)

excluding mains lead

Battery pack

Output voltage

DC 7.2 V

Capacity

5.0 Wh

Dimensions (approx.)

38 × 21 × 71 mm

(1 9/16 × 13/16 × 2 7/8 in.)

(w/h/d)

Mass (approx.)

95 g (3.4 oz)

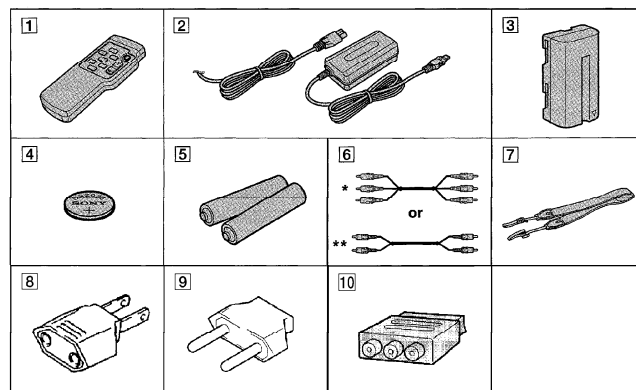
Type

Lithium ion

Design and specifications are subject to change without notice.

• SUPPLIED ACCESSORIES

Check that the following accessories are supplied with your camcorder.



1 Wireless Remote Commander (1)

CCD-TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

6 A/V connecting cable (1)

*: CCD-TR918E/TRV87E

** : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E

2 AC-L10A/L10B/L10C AC power adaptor (1), Power cord (1)

7 Shoulder strap (1)

3 NP-F330 battery pack (1)

8 2-pin conversion adaptor (1)

CCD-TR317E: E, HK/TRV47E: E, HK/TRV57E: E, HK/TRV67E: E, HK/TRV87E: E, HK

4 CR2025 lithium battery (1)

The lithium battery is already installed in your camcorder.

9 2-pin conversion adaptor (1)

CCD-TRV47E: JE/TRV57E: JE/TRV67E: JE/TRV87E: JE

5 Size AA (R6) battery for Remote Commander (2)

CCD-TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

10 21-pin conversion connector (1)

CCD-TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV57E: AEP, EE, NE, RU, UK/TRV67E: AEP, EE, NE, RU, UK/TRV87E: AEP, EE, NE, RU, UK

• Abbreviation

HK : Hong Kong model

AUS : Australian model

EE : East European model

HK : Hong Kong model

NE : North European model

CN : Chinese model

RU : Russian model

JE : Tourist model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270°C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.

Table for difference of function

Model	CCD- TR317E	CCD- TR417E	CCD- TR427E	CCD- TR617E	CCD- TR717E	CCD- TR918E	CCD- TRV37E	CCD- TRV47E	CCD- TRV48E	CCD- TRV57E	CCD- TRV67E	CCD- TRV87E	Remark
Destination	E, AUS, HK, CN	AEP, UK, EE, NE, RU	AEP, UK, EE, NE, RU	AEP, EE, NE, RU	AEP, UK, EE, NE, RU	AEP, UK, EE, NE, RU	AEP, UK, EE, NE, RU	E, AUS, HK, CN, JE	AEP, UK, EE, NE, RU	E, AUS, HK, CN, JE, AEP, UK, EE, NE, RU	E, AUS, HK, CN, JE, AEP, UK, EE, NE, RU	E, AUS, HK, CN, JE, AEP, UK, EE, NE, RU	
Remote commander		RMT-708	RMT-708	RMT-708	RMT-708	RMT-708		RMT-708	RMT-708	RMT-708	RMT-708	RMT-708	RMT-708: with IC301 of MA-374/375 board.
8/Hi8	8	8	8	8	Hi8	Hi8	8	8	8	8	Hi8	Hi8	Hi8: with S-VIDEO jack.
CCD imager	510H	510H	510H	510H	510H	760H	510H	510H	510H	510H	510H	760H	
CCD imager size (inch)	1/6	1/6	1/6	1/4	1/4	1/4	1/6	1/6	1/6	1/4	1/4	1/4	
Lens Optical	20×	20×	20×	20×	20×	20×	20×	20×	20×	20×	20×	20×	
Digital zoom 1	40×	40×(*3)	40×	40×	40×	40×	40×(*3)	40×	40×	40×	40×	40×	
Digital zoom 2	200×	40×(*1), 240×(*3)	80×(*1), 360×	80×(*2), 360×	80×(*1), 360×	80×(*1), 360×	40×(*1), 240×(*3)	200×	80×(*1), 360×	80×(*1), 360×	80×(*1), 360×	80×(*1), 360×	
LCD panel (inch)							2.5	2.5	2.5	2.5	2.5	2.5	2.5: with PD-117 board.
Back light, LCD						○						○	
VTR REC												○(*4)	
Steady shot				○	○	○			○	○	○	○	○: with IC451 of SE-100/101 board.
DIGITAL EFFECT						○						○	○: with IC203 of VC-234 board.
Photo mode						○						○	○: with IC203 of VC-234 board.
Audio system	Mono	Mono	Mono	Mono	Mono	Stereo	Mono	Mono	Mono	Mono	Mono	Stereo	
Headphone jack							○	○	○	○	○	○	○: with IC451 of SE-100/101 board.
Night shot	○	○	○	○	○	SUPER	○	○	○	○	○	SUPER	SUPER: with IC203 of VC-234 board.
LASER LINK						○						○	○: with IC751 of VC-234 board.
Video Light				○	○	○				○	○	○	○: with VL-28/29 board.
CD board		CD-239							CD-240				
CF board		CF-66							CF-67				
EJ board		EJ-29							EJ-30				
PD board									PD-117				
MA board			MA-374						MA-375				
PJ board			PJ-99						PJ-100				
SE board					SE-100				SE-101				
VF board			VF-129						VF-129				
VL board					VL-28							VL-29	

*1 AEP2, UK model only

*2 AEP2 model only

*3 AEP1, EE, NE, RU model only

*4 E, AUS, HK, CN, JE model only

• Abbreviation

EE : East European model

NE : North European model

RU : Russian model

AUS : Australian model

HK : Hong Kong model

CN : Chinese model

JE : Tourist model

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* Parts reference sheet and color reproduction frame are shown on page 276 and 277.

SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied (8.4V) to the battery terminal using the service power cord (J-6082-223-A), the power is shut off so that the unit cannot operate.

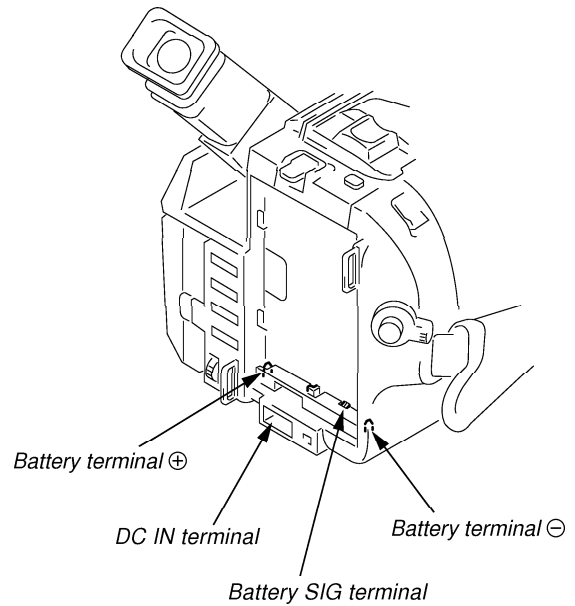
The following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.

Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the remote commander switch to the "ADJ" side.

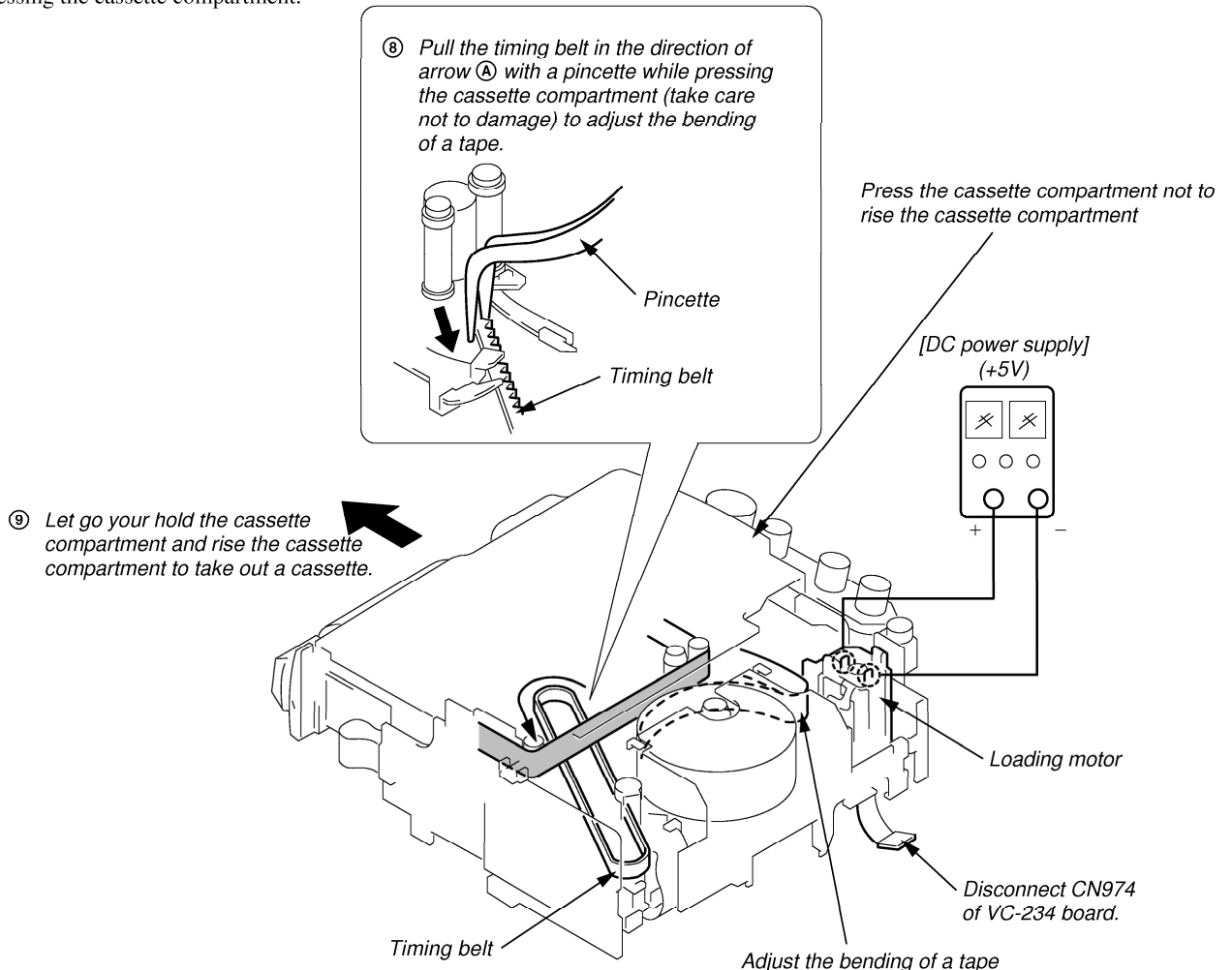
Method 2.

Use the DC IN terminal. (Use the AC power adaptor.)



2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

- ① Refer to 2-1. to remove the front panel assembly.
- ② Refer to 2-1. to remove the cabinet (R) assembly.
- ③ Refer to 2-1. to remove the battery panel assembly.
- ④ Refer to 2-1. to remove the cabinet (L) assembly.
- ⑤ Refer to 2-1. to remove the cassette lid assembly.
- ⑥ Disconnect CN974 of VC-234 board.
- ⑦ Add +5V from the DC POWER SUPPLY and unload with a pressing the cassette compartment.



SELF-DIAGNOSIS FUNCTION

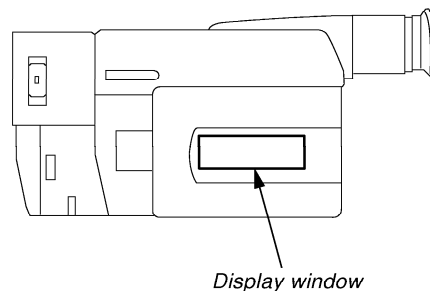
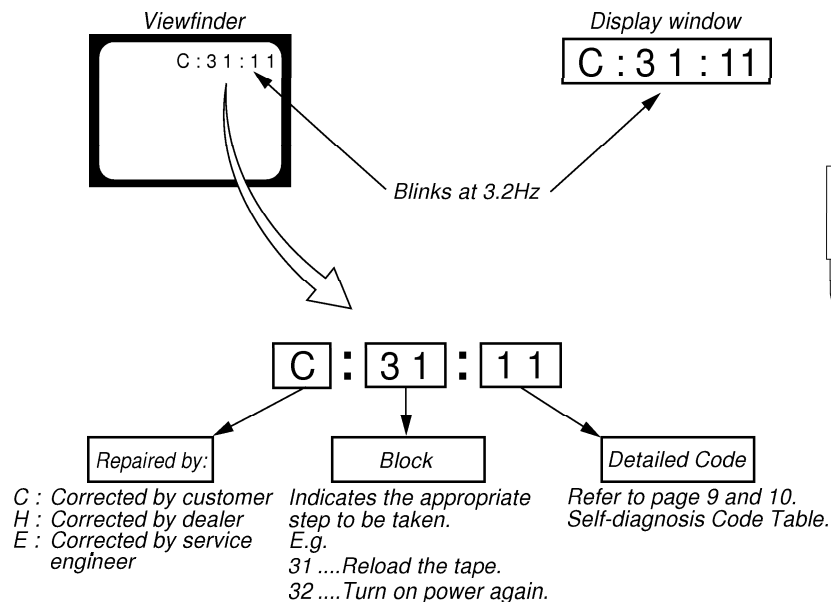
1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or Display window what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.

2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or Display window shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.

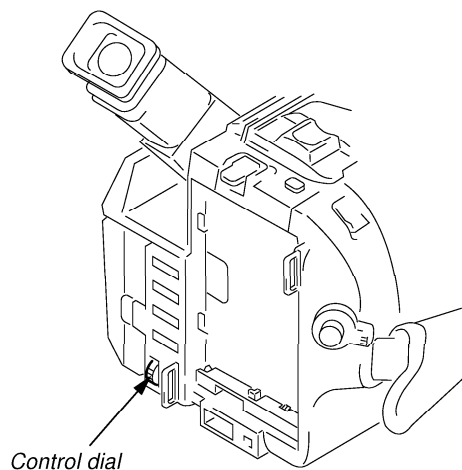
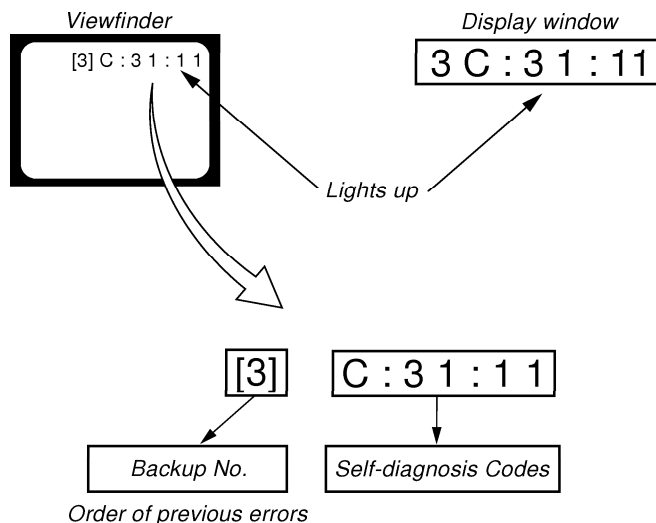


3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the “STOP” key, set the switch from OFF to “VTR or PLAYER”, and continue pressing the “STOP” key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.



3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

- | | |
|----------------------------|------------------------------|
| [1] : Occurred first time | [4] : Occurred fourth time |
| [2] : Occurred second time | [5] : Occurred fifth time |
| [3] : Occurred third time | [6] : Occurred the last time |

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The “self-diagnosis display” data will be backed up by the coin-type lithium battery (CF-66/67 board BH001). When this coin-type lithium battery is disconnected, the “self-diagnosis display” data will be lost by initialization.

4. Self-diagnosis Code Table

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
C	0 4	0 0	Non-standard battery is used.	Use the InfoLITHIUM battery.
C	2 1	0 0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3 1	1 0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 1	S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	3 1	FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 1	PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 3	PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 4	Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	1 1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 1	S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 1	FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 0	FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 1	PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 2	FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 3	PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 4	Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

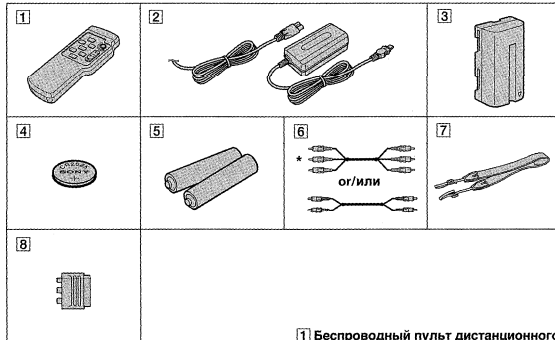
Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ⑫ of CN551 of VC-234 board) when focusing is performed when the control dial is rotated in the focus manual mode and the focus motor drive circuit (IC551 of VC-234 board) when the focusing is not performed. Note: Use the remote commander RM-95 only for the model without the focus dial.
E	6 1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑭ of CN551 of VC-234 board) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC551 of VC-234 board) when zooming is not performed.
E	6 2	0 0	Handshake correction function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE451 of SE-101 board) peripheral circuits.
E	6 2	0 1	Handshake correction function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE452 of SE-101 board) peripheral circuits.

SECTION 1 GENERAL

This section is extracted from
instruction manual. (3-868-324-11)

Checking supplied accessories

Make sure that the following accessories are
supplied with your camcorder.



- 1 **Wireless Remote Commander** (1)
(p. 115)
CCD-TRV48E/TRV57E/TRV67E/TRV87E
only
- 2 **AC-L10A/L10B/L10C AC power adaptor** (1),
Mains lead (1) (p. 14)
- 3 **NP-F330 battery pack** (1) (p. 13, 14)
- 4 **CR2025 lithium battery** (1) (p. 87)
The lithium battery is already installed in
your camcorder.
- 5 **R6 (size AA) battery for Remote
Commander** (2) (p. 115)
CCD-TRV48E/TRV57E/TRV67E/TRV87E
only
- 6 **A/V connecting cable** (1) (p. 38)
* for stereo model
- 7 **Shoulder strap** (1) (p. 111)
- 8 **21-pin adaptor** (1) (p. 39)

Contents of the recording cannot be
compensated if recording or playback is not
made due to a malfunction of the camcorder,
video tape, etc.

Проверка прилагаемых принадлежностей

Убедитесь, что следующие принадлежности
прилагаются к Вашей видеокамере.

- 1 **Беспроводный пульт дистанционного
управления** (1) (стр. 115)
Только модель CCD-TRV48E/TRV57E/
TRV67E/TRV87E
- 2 **Сетевой адаптер переменного тока
AC-L10A/L10B/L10C** (1), Шнур
электроснабжения (1) (стр. 14)
- 3 **Батарейный блок NP-F330** (1) (стр. 13, 14)
- 4 **Литиевая батарейка CR2025** (1) (стр. 87)
Литиевая батарейка уже установлена в
Вашей видеокамере.
- 5 **Батарейка R6 (размера AA) для пульта
дистанционного управления** (2) (стр. 115)
Только модель CCD-TRV48E/TRV57E/
TRV67E/TRV87E
- 6 **Соединительный кабель аудио/видео**
(1) (стр. 38)
* Для стереофонической модели
- 7 **Плечевой ремень** (1) (стр. 111)
- 8 **21-штырьковый адаптер** (1) (стр. 39)

Содержание записи не может быть
компенсировано в случае, если запись или
воспроизведение не выполнены из-за
неисправности видеокамеры, видеополосы
и т.п.

English

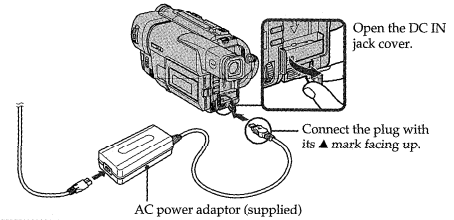
Quick Start Guide



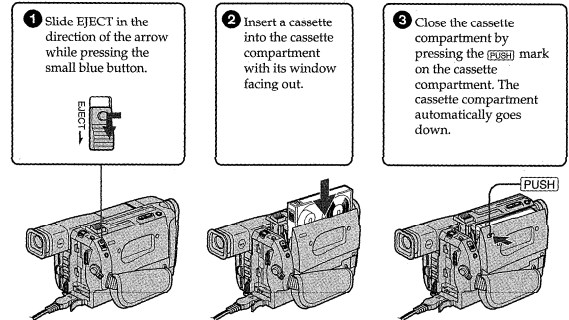
This chapter introduces you to the basic features of your
camcorder. See the page in parentheses "()" for more
information.

1 Connecting the mains lead (p. 19)

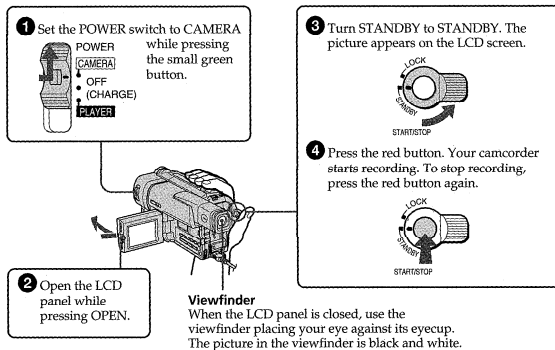
Use the battery pack when using your camcorder outdoors (p. 13).



2 Inserting a cassette (p. 21)

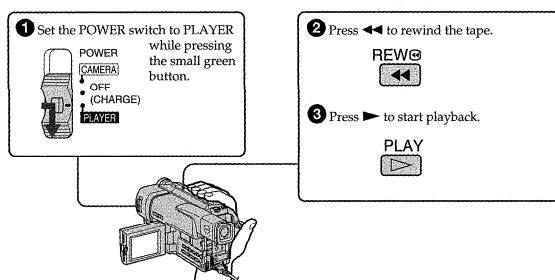


3 Recording a picture (p. 22)



Viewfinder
When the LCD panel is closed, use the
viewfinder placing your eye against its eyecup.
The picture in the viewfinder is black and white.

4 Monitoring the playback picture on the LCD screen (p. 34)



NOTE
Do not pick up your camcorder by
holding the viewfinder, the LCD panel
or the battery pack.



— Getting started — Using this manual

The instructions in this manual are for the five
models listed in the table on the next page. Before
you start reading this manual and operating your
camcorder, check the model number by looking
at the bottom of your camcorder. The
CCD-TRV87E is the model used for illustration
purposes. Otherwise, the model name is
indicated in the illustrations. Any differences in
operation are clearly indicated in the text, for
example, "CCD-TRV87E only."
As you read through this manual, buttons and
settings on your camcorder are shown in capital
letters.
e.g. Set the POWER switch to CAMERA.
When you carry out an operation, you can hear a
beep sound to indicate that the operation is being
carried out.

— Подготовка к эксплуатации — Использование данного руководства

Инструкции в данном руководстве
предназначены для пяти моделей, указанных
в таблице на следующей странице. Прежде,
чем прочесть данное руководство, и начать
эксплуатацию Вашей видеокамеры,
проверьте номер модели на нижней стороне
видеокамеры. Для иллюстративных целей
используется модель CCD-TRV87E. Или же
наименование модели указано на рисунках.
Всякие отличия по эксплуатации четко
указаны в тексте, например, "только модель
CCD-TRV87E".
При чтении данного руководства
учитывайте, что кнопки и установки на
видеокамере показаны заглавными буквами.
Прим.
Установите переключатель POWER в
положение CAMERA.
При выполнении операции на видеокамере
Вы сможете услышать зуммерный сигнал,
подтверждающий выполнение операции.

Using this manual

Использование данного руководства

Types of differences/Типы различий

CCD-System	TRV37E	TRV48E	TRV57E	TRV67E	TRV87E
Система	■	■	■	■	■
S VIDEO OUT	—	—	—	●	●
Digital zoom	40x *	80x **	80x **	80x **	80x **
Цифровой вариообъектив					
Super NightShot	—	—	—	—	●
Ночная суперсъемка					
SteadyShot	—	—	●	●	●
Устойчивая съемка					
Remote sensor	—	●	●	●	●
Дистанционный датчик					
SUPER LASER LINK	—	—	—	—	●
Photo mode	—	—	—	—	●
Фоторежим					
PROGRAM AE	●	●	●	●	●
Low lux mode	—	—	—	—	●
Режим низкого освещения					
Digital effect	—	—	—	—	●
Цифровой эффект					
Fader function	●	●	●	●	●
Функция фейдера					
OVERLAP	—	—	—	—	●
WIPE	—	—	—	—	●
Built-in light	—	—	●	●	●
Встроенная подсветка					
Audio	monaural	monaural	monaural	monaural	stereo
Аудиосигнал	монофонический	монофонический	монофонический	монофонический	стереофонический

● Provided/Имеется
— Not provided/Не имеется

* 240x in some areas/240x в некоторых областях
** 360x in some areas/360x в некоторых областях

Getting started Подготовка к эксплуатации

Using this manual

Note on TV colour systems

TV colour systems differ from country to country. To view your recordings on a TV, you need a PAL system-based TV.

Copyright precautions

Television programmes, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Precautions on camcorder care

- The LCD screen and the viewfinder are manufactured using high-precision technology. However, there may be some tiny black points and/or bright points (red, blue, green or white) that constantly appear on the LCD screen and in the viewfinder. These points occur normally in the manufacturing process and do not affect the recorded picture in any way. Effective ratio of pixels and/or screen are 99.99% or more.
- Do not let your camcorder get wet. Keep your camcorder away from rain and sea water. Letting your camcorder get wet may cause your camcorder to malfunction. Sometimes this malfunction cannot be repaired [a].
- Never leave your camcorder exposed to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight [b].
- Do not place your camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder or the LCD screen may be damaged [c].

Использование данного руководства

Примечание по системам цветного телевидения

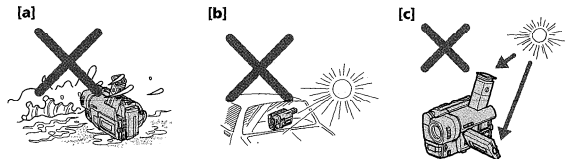
Системы цветного телевидения отличаются в зависимости от страны. Для просмотра Ваших записей на экране телевизора Вам необходимо использовать телевизор, основанный на системе PAL.

Предостережение об авторском праве

Телевизионные программы, кинофильмы, видеоленты и другие материалы могут быть защищены авторским правом. Неполученная запись таких материалов может противоречить положениям закона об авторском праве.

Меры предосторожности при уходе за видеокамерой

- Экран ЖКД и видоискатель изготовлены с помощью высокоточной технологии. Однако на экране ЖКД и в видоискателе могут постоянно появляться черные или яркие цветные точки (красные, синие или зеленые). Появление этих точек вполне нормально для процесса съемки и никоим образом не влияет на записываемое изображение. Свыше 99.99% экрана предназначено для эффективного использования.
- Не допускайте, чтобы видеокамера становилась влажной. Предохраняйте видеокамеру от дождя и морской воды. Если Вы намочите видеокамеру, то это может привести к неисправности аппарата, которая не всегда может быть устранена [a].
- Никогда не оставляйте видеокамеру в месте с температурой выше 60°C (140°F), как, например, в автомобиле, оставленном на солнце или под прямым солнечным светом [b].
- Не располагайте Вашу видеокамеру так, чтобы экран ЖКД был направлен на солнце. Внутреннее устройство видоискателя или экрана ЖКД может быть повреждено [c].



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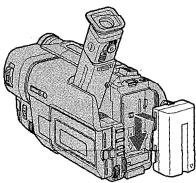
12

Step 1 Preparing the power supply

Installing the battery pack

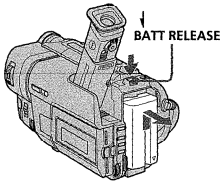
Install the battery pack to use your camcorder outdoors.

Slide the battery pack down until it clicks.



To remove the battery pack

Slide the battery pack out in the direction of the arrow while pressing ↓ BATT RELEASE down.



After installing the battery pack

Do not carry your camcorder by holding the battery pack. If you do so, the battery pack may slide off your camcorder unintentionally, damaging your camcorder.

Пункт 1 Подготовка источника питания

Установка батарейного блока

Установите батарейный блок для того, чтобы использовать Вашу видеокамеру вне помещения.

Передвиньте батарейный блок вниз так, чтобы он защелкнулся.

Для снятия батарейного блока

Передвиньте батарейный блок в направлении стрелки, нажав кнопку ↓ BATT RELEASE вниз.

После установки батарейного блока

Не переносите свою видеокамеру, взявшись за батарейный блок. Если Вы так сделаете, батарейный блок может произвольно соскользнуть с Вашей видеокамеры и повредить ее.

Getting started Подготовка к эксплуатации

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Step 1 Preparing the power supply

Charging the battery pack

Use the battery pack after charging it for your camcorder.

Your camcorder operates only with the "InfoLITHIUM" battery pack (L series).

- Open the DC IN jack cover and connect the AC power adaptor supplied with your camcorder to the DC IN jack with the plug's ▲ mark facing up.
- Connect the mains lead to the AC power adaptor.
- Connect the mains lead to the mains.
- Set the POWER switch to OFF (CHARGE). Charging begins. The remaining battery time is indicated in minutes on the display window.

When the remaining battery indicator changes to ■■■, normal charge is completed. To fully charge the battery (full charge), leave the battery pack attached for about 1 hour after normal charge is completed until FULL appears in the display window. Fully charging the battery allows you to use the battery longer than usual.

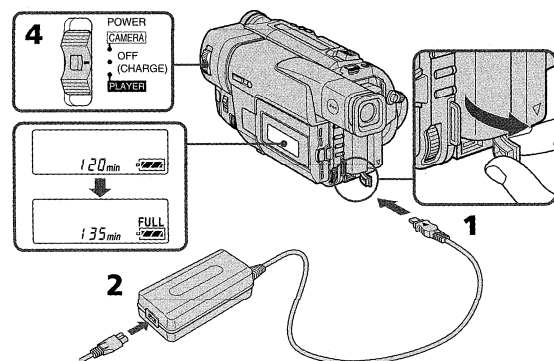
Пункт 1 Подготовка источника питания

Зарядка батарейного блока

Используйте батарейный блок для Вашей видеокамеры после его зарядки. Ваша видеокамера работает только с батарейным блоком "InfoLITHIUM" (серии L).

- Откройте крышку гнезда DC IN и подсоедините сетевой адаптер переменного тока, прилагаемый к Вашей видеокамере, к гнезду DC IN, так чтобы знак штекера ▲ был направлен вверх.
- Подсоедините провод электропитания к сетевому адаптеру переменного тока.
- Подсоедините провод электропитания к сетевой розетке.
- Установите переключатель POWER в положение OFF (CHARGE). Начнется зарядка. В окошке дисплея будет отображаться время оставшегося заряда в минутах.

Если индикатор оставшегося заряда изменится на ■■■, это значит, что нормальная зарядка завершена. Для полной зарядки батарейного блока (полная зарядка) оставьте батарейный блок прикрепленным на месте приблизительно на один час после завершения нормальной зарядки до тех пор, пока в окошко дисплея не появится индикация FULL. Полная зарядка батарейного блока позволяет Вам использовать батарейный блок дольше чем обычно.



Step 1 Preparing the power supply

Notes

- Prevent metallic objects from coming into contact with the metal parts of the DC plug of the AC power adaptor. This may cause a short-circuit, damaging the AC power adaptor.
- Keep the battery pack dry.
- When the battery pack is not to be used for a long time, charge the battery pack once fully and then use it until it fully discharges again. Keep the battery pack in a cool place.

Remaining battery time indicator

The remaining battery time indicator in the display window roughly indicates the recording time with the viewfinder.

Battery pack

The battery pack is charged a little before it leaves the factory.

Until your camcorder calculates the actual remaining battery time

"---- min" appears in the display window.

While charging the battery pack, no indicator appears or the indicator flashes in the display window in the following cases

- The battery pack is not installed correctly.
- The AC power adaptor is disconnected.
- Something is wrong with the battery pack.

Пункт 1 Подготовка источника питания

Примечания

- Не допускайте контакта металлических предметов с металлическими частями штекера постоянного тока сетевого адаптера переменного тока. Это может привести к короткому замыканию и повреждению сетевого адаптера переменного тока.
- Сохраняйте батарейный блок сухим.
- Когда батарейный блок не будет использоваться длительный период времени, полностью зарядите батарейный блок один раз, а затем используйте его до тех пор, пока он снова полностью не разрядится. Храните батарейный блок в прохладном месте.

Индикатор времени оставшегося заряда батарейного блока

Индикатор времени оставшегося заряда батарейного блока в окошке дисплея приблизительно указывает время записи с помощью видеосканеля.

Батарейный блок

Батарейный блок уже немного заряжен на предприятии-изготовителе.

До тех пор, пока Ваша видеокамера определит действительное время оставшегося заряда батарейного блока

В окошке дисплея будет отображаться индикация "---- min".

Во время зарядки батарейного блока никакой индикатор не появляется, или индикатор будет мигать в окошке дисплея в следующих случаях

- Батарейный блок установлен не правильно.
- Отсоединен сетевой адаптер переменного тока.
- Что-то не в порядке с батарейным блоком.

Step 1 Preparing the power supply

Charging time/Время зарядки

Battery pack/ Батарейный блок	Full charge (Normal charge)/ Полная зарядка (нормальная зарядка)
NP-F330 (supplied)/прилагается	150 (90)
NP-F530/F550	210 (150)
NP-F730/F750	300 (240)
NP-F930/F950	390 (330)
NP-F960	420 (360)

Approximate number of minutes to charge an empty battery pack

Приблизительное время в минутах для зарядки полностью разряженного батарейного блока

Recording time/Время записи

CCD-TRV37E/TRV48E/TRV57E/TRV67E

Battery pack/ Батарейный блок	Recording with the viewfinder/ Запись с помощью видеосканеля		Recording with the LCD screen/ Запись с помощью экрана ЖКД	
	Continuous*/ Непрерывная*	Typical**/ Типичная**	Continuous*/ Непрерывная*	Typical**/ Типичная**
NP-F330 (supplied)/прилагается	140 (125)	75 (70)	120 (105)	65 (55)
NP-F530	245 (220)	135 (120)	205 (180)	110 (100)
NP-F550	280 (250)	155 (135)	240 (210)	130 (115)
NP-F730	500 (450)	275 (245)	410 (370)	225 (205)
NP-F750	580 (525)	320 (290)	490 (440)	270 (240)
NP-F930	780 (705)	420 (385)	650 (585)	355 (320)
NP-F950	900 (790)	495 (435)	750 (675)	410 (370)
NP-F960	1035 (930)	570 (510)	880 (790)	490 (440)

CCD-TRV87E

Battery pack/ Батарейный блок	Recording with the viewfinder/ Запись с помощью видеосканеля		Recording with the LCD screen/ Запись с помощью экрана ЖКД	
	Continuous*/ Непрерывная*	Typical**/ Типичная**	Continuous*/ Непрерывная*	Typical**/ Типичная**
NP-F330 (supplied)/прилагается	135 (120)	75 (65)	115 (100)	65 (55)
NP-F530	235 (210)	130 (115)	195 (170)	110 (95)
NP-F550	270 (240)	150 (130)	230 (200)	125 (110)
NP-F730	475 (425)	260 (235)	395 (355)	215 (195)
NP-F750	550 (500)	300 (275)	470 (425)	260 (235)
NP-F930	745 (670)	410 (370)	625 (560)	345 (310)
NP-F950	850 (760)	465 (420)	725 (650)	400 (355)
NP-F960	990 (890)	545 (490)	850 (765)	470 (420)

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Step 1 Preparing the power supply

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "()" indicate the time using a normally charged battery.

- Approximate continuous recording time at 25°C (77°F). The battery life will be shorter if you use your camcorder in a cold environment.

- Approximate number of minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Пункт 1 Подготовка источника питания

Приблизительное время в минутах при использовании полностью заряженного батарейного блока

Числа в скобках "()" указывают время при использовании батарейного блока с нормальной зарядкой.

- Приблизительное время непрерывной записи при температуре 25°C (77°F). При использовании видеокамеры в холодных условиях срок службы батарейного блока будет короче.

- Приблизительное время в минутах при записи с неоднократным пуском/остановкой записи, наездом видеокамеры и включением/выключением питания. Фактический срок службы заряда батарейного блока может быть короче.

Step 1 Preparing the power supply

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "()" indicate the time using a normally charged battery. The battery life will be shorter if you use your camcorder in a cold environment.

After charging the battery pack

Disconnect the AC power adaptor from the DC IN jack on your camcorder.

Note on the remaining battery time indicator during recording

The indicator may not be correct, depending on the conditions in which you are recording. When you close the LCD panel and open it again, it takes about 1 minute for the correct remaining battery time to be displayed.

What is "InfoLITHIUM"?

The "InfoLITHIUM" is a lithium ion battery pack which can exchange data such as battery consumption with compatible electronic equipment. This unit is compatible with the "InfoLITHIUM" battery pack (L series). Your camcorder operates only with the "InfoLITHIUM" battery. "InfoLITHIUM" L series battery packs have the  mark. "InfoLITHIUM" is a trademark of Sony Corporation.

Пункт 1 Подготовка источника питания

Приблизительное время в минутах при использовании полностью заряженного батарейного блока

Числа в скобках "()" указывают время при использовании батарейного блока с нормальной зарядкой. При использовании видеокамеры в холодных условиях срок службы батарейного блока будет короче.

После зарядки батарейного блока

Отсоедините сетевой адаптер переменного тока от гнезда DC IN на Вашей видеокамере.

Примечания по индикатору времени оставшегося заряда батарейного блока во время записи

Индикатор может быть неправильным в зависимости от условий, в которых выполняется запись. Если Вы закроете панель ЖКД и откроете ее снова, то пройдет около 1 минуты, прежде чем на дисплее появится правильное время оставшегося заряда батарейного блока.

Что такое "InfoLITHIUM"?

"InfoLITHIUM" является литиево-ионным батарейным блоком, который может обмениваться данными, как например потребление батарейного заряда, с совместимой электронной аппаратурой. Это устройство совместимо с батарейным блоком "InfoLITHIUM" (серии L). Ваша видеокамера работает только с батарейным блоком "InfoLITHIUM". На батарейных блоках "InfoLITHIUM" серии L имеется знак . "InfoLITHIUM" является торговой маркой корпорации Sony Corporation.

Playing time/Время воспроизведения

CCD-TRV37E/TRV48E/TRV57E/TRV67E

Battery pack/ Батарейный блок	Playing time on LCD screen/ Время воспроизведения на экране ЖКД	Playing time with LCD closed/ Время воспроизведения при закрытом ЖКД
NP-F330 (supplied)/прилагается	125 (110)	145 (130)
NP-F530	215 (190)	260 (230)
NP-F550	250 (220)	295 (260)
NP-F730	430 (385)	525 (475)
NP-F750	510 (460)	610 (550)
NP-F930	680 (610)	825 (740)
NP-F950	780 (700)	930 (830)
NP-F960	915 (820)	1090 (980)

CCD-TRV87E

Battery pack/ Батарейный блок	Playing time on LCD screen/ Время воспроизведения на экране ЖКД	Playing time with LCD closed/ Время воспроизведения при закрытом ЖКД
NP-F330 (supplied)/прилагается	120 (105)	140 (125)
NP-F530	205 (180)	245 (220)
NP-F550	240 (210)	280 (250)
NP-F730	410 (370)	500 (450)
NP-F750	490 (440)	580 (525)
NP-F930	680 (585)	780 (705)
NP-F950	780 (675)	900 (790)
NP-F960	880 (790)	1035 (930)

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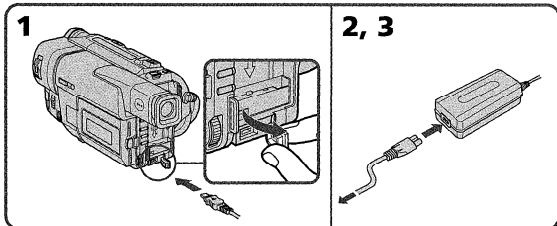
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Step 1 Preparing the power supply

Connecting to the mains

When you use your camcorder for a long time, we recommend that you power it from the mains using the AC power adaptor.

- (1) Open the DC IN jack cover, and connect the AC power adaptor to the DC IN jack on your camcorder with the plug's ▲ mark facing up.
- (2) Connect the mains lead to the AC power adaptor.
- (3) Connect the mains lead to the mains.



Пункт 1 Подготовка источника питания

Подсоединение к сетевой розетке

Если Вы собираетесь использовать видеокамеру длительное время, рекомендуется использовать питание от электрической сети с помощью сетевого адаптера переменного тока.

- (1) Откройте крышку гнезда DC IN и подсоедините сетевой адаптер переменного тока к гнезду DC IN на Вашей видеокамере, так чтобы знак ▲ на штекере был обращен вверх.
- (2) Подсоедините провод электропитания к сетевому адаптеру переменного тока.
- (3) Подсоедините провод электропитания к сетевой розетке.

Getting started Подготовка к эксплуатации

Step 1 Preparing the power supply

PRECAUTION

The set is not disconnected from the AC power source (mains) as long as it is connected to the mains, even if the set itself has been turned off.

Notes

- The AC power adaptor can supply power even if the battery pack is attached to your camcorder.
- The DC IN jack has "source priority". This means that the battery pack cannot supply any power if the mains lead is connected to the DC IN jack, even when the mains lead is not plugged into the mains.

Using a car battery

Use Sony DC Adaptor/Charger (not supplied).

Пункт 1 Подготовка источника питания

ПРЕДОСТЕРЕЖЕНИЕ

Аппарат не отключается от источника питания перем. тока (электрической сети) до тех пор, пока он подключен к электрической сети, даже если сам аппарат выключен.

Примечания

- Питание от сетевого адаптера переменного тока может подаваться даже в случае, если батарейный блок прикреплён к Вашей видеокамере.
- Гнездо DC IN имеет "приоритет источника". Это значит, что питание от батарейного блока не может подаваться, если провод электропитания подсоединен к гнезду DC IN, даже если провод электропитания и не подсоединен к сетевой розетке.

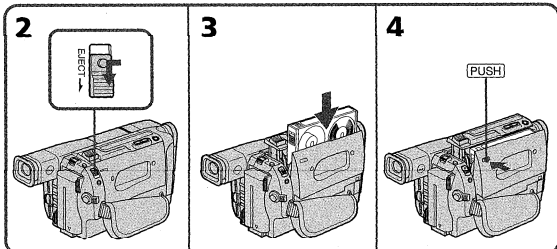
Использование автомобильного аккумулятора

Используйте адаптер/зарядное устройство постоянного тока Sony (не прилагается).

Step 2 Inserting a cassette

When you want to record in the Hi8 system, use Hi8 video cassette **Hi8**. (CCD-TRV67E/TRV87E only)

- (1) Prepare the power supply (p. 13).
- (2) Slide EJECT in the direction of the arrow while pressing the small blue button. The cassette compartment automatically lifts up and opens.
- (3) Insert a cassette with its window facing out and the tab on the cassette up.
- (4) Close the cassette compartment by pressing the **PUSH** mark on the cassette compartment. The cassette compartment automatically goes down.



To eject a cassette

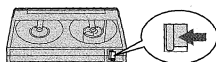
Slide EJECT in the direction of the arrow while pressing the small blue button.

Note

Do not press the cassette compartment down. Doing so may cause malfunction.

To prevent accidental erasure

Slide the write-protect tab on the cassette to expose the red mark.



Пункт 2 Установка кассеты

Если Вы хотите выполнять запись в системе Hi8, используйте видеокассету Hi8 **Hi8** (только модель CCD-TRV67E/TRV87E).

- (1) Подготовьте источник питания (стр. 13).
- (2) Нажав маленькую синюю кнопку, передвиньте переключатель EJECT в направлении стрелки. Отсек для кассеты автоматически поднимется вверх и откроется.
- (3) Вставьте кассету, так чтобы окошко было обращено наружу, а лепесток на кассете вверх.
- (4) Закройте отсек для кассеты, нажав метку **PUSH** на отсеке. Отсек для кассеты автоматически опустится вниз.

Getting started Подготовка к эксплуатации

— Recording — Basics —

Recording a picture

Your camcorder automatically focuses for you.

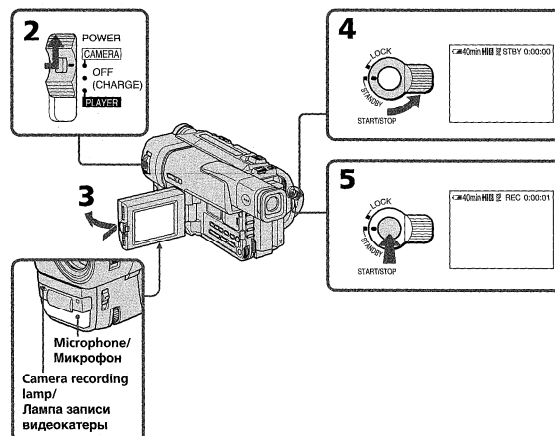
- (1) Install the power source and insert a cassette. See "Step 1" and "Step 2" for more information (p. 13 to 21).
- (2) Set the POWER switch to CAMERA while pressing the small green button. The lens cover opens.
- (3) Open the LCD panel while pressing OPEN. The viewfinder automatically turns off.
- (4) Turn STANDBY to STANDBY.
- (5) Press START/STOP. Your camcorder starts recording. The "REC" indicator appears. The camera recording lamp located on the front of your camcorder lights up. To stop recording, press START/STOP again. The recording lamp lights up in the viewfinder when you record with the viewfinder.

— Запись — Основные положения —

Запись изображения

Ваша видеокамера автоматически выполняет фокусировку за Вас.

- (1) Установите источник питания и вставьте кассету. Подробные сведения приведены в "Пункте 1" и "Пункте 2" (стр. 13 – 21).
- (2) Нажав маленькую зеленую кнопку, установите переключатель POWER в положение CAMERA. Откроется крышка объектива.
- (3) Нажав кнопку OPEN, откройте панель ЖКД. Видоискатель выключится автоматически.
- (4) Поверните рычаг STANDBY в положение STANDBY.
- (5) Нажмите кнопку START/STOP. Ваша видеокамера начнет запись. Появится индикатор "REC". Высветится также лампочка записи на передней панели видеокамеры. Для остановки записи нажмите кнопку START/STOP еще раз. При записи с помощью видоискателя в нем будет высветываться лампочка записи.



Recording a picture

Note

Fasten the grip strap firmly. Do not touch the built-in microphone during recording.

To enable smooth transition

You can make the transition between the last scene you recorded and the next scene smooth as long as you do not eject the cassette. When you exchange the battery pack in the recording mode, set **STANDBY** to **LOCK**.

If you leave your camcorder in the standby mode for 5 minutes while the cassette is inserted

Your camcorder automatically turns off. This is to save battery power and to prevent battery and tape wear. To resume the standby mode, turn **STANDBY** down and up again. To start recording, press **START/STOP**.

To set the counter to 0:00:00

Press **COUNTER RESET** (p. 112).

After recording

- (1) Turn **STANDBY** down to **LOCK**.
- (2) Close the LCD panel.
- (3) Eject the cassette.
- (4) Set the **POWER** switch to **OFF (CHARGE)**.

After use your camcorder (CCD-TRV57E/TRV67E/TRV87E only)

Remove the battery pack from your camcorder to avoid turning on the built-in light.

Запись изображения

Примечание

Плотно пристегните ремень для захвата видеокамеры. Не прикасайтесь к встроенному микрофону во время записи.

Для обеспечения плавного перехода

Вы можете выполнять плавный переход между последним записанным эпизодом и следующим эпизодом до тех пор, пока не извлечете кассету. При замене батарейного блока в режиме записи установите рычаг **STANDBY** в положение **LOCK**.

Если Вы оставите Вашу видеокамеру в режиме готовности на 5 минут при вставленной кассете

Видеокамера выключится автоматически. Это предотвращает расход заряда батарейного блока и износ ленты. Для возобновления режима готовности поверните рычаг **STANDBY** вниз и снова вверх. Для начала записи нажмите кнопку **START/STOP**.

Для установки счетчика в положение 0:00:00

Нажмите кнопку **COUNTER RESET** (стр. 112).

После записи

- (1) Поверните рычаг **STANDBY** в положение **LOCK**.
- (2) Закройте панель ЖКД.
- (3) Извлеките кассету.
- (4) Установите переключатель **POWER** в положение **OFF (CHARGE)**.

После пользования видеокамерой (только модель CCD-TRV57E/TRV67E/TRV87E)

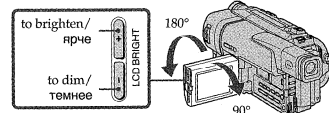
Выньте батарейный блок из Вашей видеокамеры во избежание включения встроенной подсветки.

Recording a picture

Adjusting the LCD screen

To adjust the brightness of the LCD screen, press either of the two buttons on **LCD BRIGHT**. The LCD panel moves about 90 degrees to the viewfinder side and about 180 degrees to the lens side.

If you turn the LCD panel over so that it faces the other way, the  indicator appears in the viewfinder and on the LCD screen (**Mirror mode**).



When closing the LCD panel, set it vertically until it clicks, and swing it into the camcorder body.

Note

When using the LCD screen except in the mirror mode, the viewfinder automatically turns off.

When you use the LCD screen outdoors in direct sunlight

The LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

Picture in the mirror mode

The picture on the LCD is a mirror-image. However, the picture will be normal when recorded.

During recording in the mirror mode

DATE and **TIME** on your camcorder do not work.

Indicators in the mirror mode

- The **STBY** indicator appears as  and **REC** as . Some of the other indicators appear mirror-reversed and others are not displayed.
- The date appears mirror-reversed when the auto date function is working. However, the date will be normal when recorded.

Запись изображения

Регулировка экрана ЖКД

Для регулировки яркости экрана ЖКД нажмите одну из кнопок на **LCD BRIGHT**. Панель ЖКД может передвигаться примерно на 90 градусов в сторону видоискателя и примерно на 180 градусов в сторону объектива.

Если Вы перевернете панель ЖКД так, что она будет направлена в другую сторону, индикатор  появится в видоискателе и на экране ЖКД (**Зеркальный режим**).

При закрывании панели ЖКД установите ее вертикально, пока не раздастся щелчок, а затем присоедините ее к корпусу видеокамеры.

Примечание

При использовании экрана ЖКД видоискатель автоматически выключается, кроме зеркального режима.

Если Вы используете экран ЖКД вне помещения под прямым солнечным светом

Возможно будет трудно разглядеть экран ЖКД. В этом случае рекомендуется использовать видоискатель.

Изображение в зеркальном режиме

Изображение на экране ЖКД будет отображаться зеркально. Однако запись изображения будет нормальной.

Во время записи в зеркальном режиме **DATE** и **TIME** на Вашей видеокамере не будут работать.

Индикаторы в зеркальном режиме

- Индикатор **STBY** появится в виде , а индикатор **REC** в виде . Некоторые другие индикаторы появятся в зеркально отображенном виде, а некоторые из них не будут отображаться совсем.
- В случае, если работает функция автоматической даты, то дата будет отображаться зеркально, однако на записи дата будет в нормальном виде.

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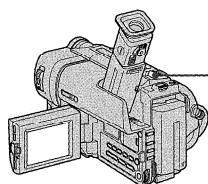
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Recording a picture

Using the zoom feature

Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom. Using the zoom function sparingly results in better-looking recordings.

"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)

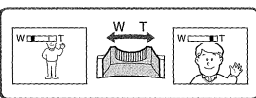


Zoom greater than 20x is performed digitally. To activate digital zoom, select the digital zoom power in **D ZOOM** in the menu settings. (p. 70) The picture quality deteriorates as the picture is processed digitally.

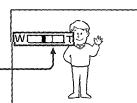
Запись изображения

Использование функции наезда видеокамеры

Передвиньте рычаг приводного вариообъектива слегка для относительно медленного наезда видеокамеры. Передвиньте его сильнее для ускоренного наезда видеокамеры. Использование функции наезда видеокамеры в небольшом количестве обеспечивает наилучшие результаты.
Сторона "T" : для телефото (объект приближается)
Сторона "W" : для широкоугольного вида (объект удаляется)



Наезд видеокамеры более 20x выполняется цифровым методом. Для активизация цифрового вариообъектива, выберите увеличение цифрового вариообъектива в команде **D ZOOM** в установках меню. (стр. 70) Качество изображения ухудшается при цифровой обработке изображения.



The right side of the bar shows the digital zooming zone.
The digital zooming zone appears when you select the digital zoom power in **D ZOOM** in the menu settings.
Правая сторона полосы на экране показывает зону цифровой трансфокации. Зона цифровой трансфокации появляется, когда Вы выбираете увеличение цифрового вариообъектива в команде **D ZOOM** в установках меню.

Recording a picture

When you shoot close to a subject

If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 80 cm (about 2 feet 5/8 inch) away from the lens surface in the telephoto position, or about 1 cm (about 1/2 inch) away in the wide-angle position.

Notes on digital zoom

- Digital zoom starts to function when zoom exceeds 20x.
- The picture quality deteriorates as you go toward the "T" side.

Запись изображения

При съемке объекта с близкого положения

Если Вы не можете получить четкой фокусировки, передвиньте рычаг приводного вариообъектива в сторону "W" до получения четкой фокусировки. Вы можете выполнять съемку объекта в положении телефото, который отстоит по крайней мере на расстоянии 80 см от поверхности объектива или же около 1 см в положении широкоугольного вида.

Примечания к наезду видеокамеры цифровым методом

- Цифровой вариообъектив начинает срабатывать в случае, если наезд видеокамеры превышает 20x.
- Качество изображения ухудшается по мере приближения к стороне "T".

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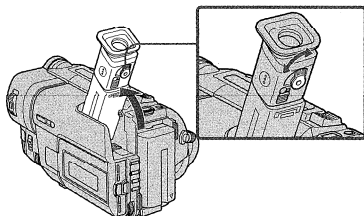
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Recording a picture

To record pictures with the viewfinder – adjusting the viewfinder

If you record pictures with the LCD panel closed, check the picture with the viewfinder. Adjust the viewfinder lens to your eyesight so that the indicators in the viewfinder come into sharp focus.

Lift up the viewfinder and move the viewfinder lens adjustment lever.



Запись изображения

Для записи изображений с помощью видоискателя – регулировка видоискателя

Если Вы будете записывать изображения при закрытой панели ЖКД, проверьте изображение с помощью видоискателя. Отрегулируйте объектив видоискателя в соответствии со своим зрением, так чтобы индикаторы в видоискателе были четко сфокусированы.

Поднимите видоискатель и подвигайте рычаг регулировки объектива видоискателя.

Recording – Basics Запись – Основные положения

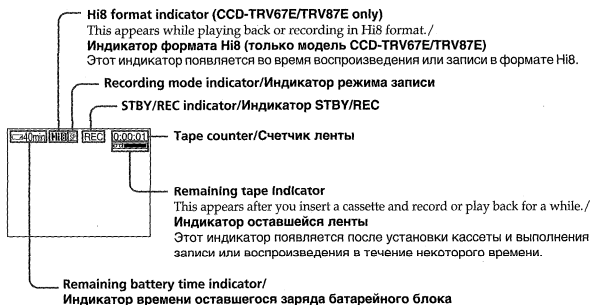
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Recording a picture

Indicators displayed in the recording mode

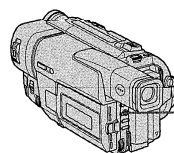
The indicators are not recorded on tape.



Shooting backlit subjects (BACK LIGHT)

When you shoot a subject with the light source behind the subject or a subject with a light background, use the backlight function.

Press BACK LIGHT in the recording or standby mode.
The indicator appears in the viewfinder or on the LCD screen.
To cancel, press BACK LIGHT again.



Запись изображения

Индикаторы, отображаемые в режиме записи

Индикаторы не записываются на ленту.

Съемка объектов с задней подсветкой (BACK LIGHT)

Если Вы выполняете съемку объекта с источником света позади него или же объекта со светлым фоном, используйте функцию задней подсветки.

Нажмите кнопку BACK LIGHT в режиме записи или ожидания.
В видоискателе или на экране ЖКД появится индикатор .
Для отмены нажмите кнопку BACK LIGHT еще раз.

Если вы нажмете кнопку EXPOSURE при выполнении съемки объектов с задней подсветкой функция задней подсветки будет отменена.

Recording a picture

Shooting in the dark (NightShot)

The NightShot function enables you to shoot a subject in a dark place. For example, you can satisfactorily record the environment of nocturnal animals for observation when you use this function.

While your camcorder is in the standby mode, slide NIGHTSHOT to ON.

and "NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder. To cancel the NightShot function, slide NIGHTSHOT to OFF.



Using the Super NightShot mode – CCD-TRV87E only

The Super NightShot mode makes subjects more than four times brighter than those recorded in the NightShot mode.

- (1) Slide NIGHTSHOT to ON in the standby mode. indicator appears on the LCD screen or in the viewfinder.
- (2) Press SUPER NIGHTSHOT. and "SUPER NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder.
To cancel the Super NightShot mode, press SUPER NIGHTSHOT again.

Using the NightShot Light

The picture will be clearer with the NightShot Light on. To enable NightShot Light, set N.S.LIGHT to ON in the menu settings (p. 70).

Запись изображения

Съемка в темноте (Ночная съемка)

Функция ночной съемки позволяет Вам выполнять съемку объектов в темных местах. Например, Вы сможете с успехом выполнять съемку ночных животных для наблюдения при использовании данной функции.

В то время, когда видеокамера находится в режиме ожидания, передвиньте переключатель NIGHTSHOT в положение ON. Индикаторы и "NIGHTSHOT" начнут мигать на экране ЖКД или в видоискателе. Для отмены функции ночной съемки передвиньте переключатель NIGHTSHOT в положение OFF.

Использование режима ночной суперсъемки

— Только модель CCD-TRV87E
Режим ночной суперсъемки делает объекты более, чем в четыре раза ярче, чем при записи их в режиме ночной съемки.

- (1) Передвиньте NIGHTSHOT в положение ON в режиме ожидания. Индикатор появится на экране ЖКД или в видоискателе.
- (2) Нажмите SUPER NIGHTSHOT. Индикаторы и "SUPER NIGHTSHOT" будут мигать на экране ЖКД или в видоискателе.
Для отмены режима ночной суперсъемки снова нажмите SUPER NIGHTSHOT.

Использование подсветки для ночной съемки
Изображение станет ярче, если включить функцию ночной подсветки. Для включения функции ночной подсветки установите команду N.S.LIGHT в положение ON в установках меню (стр. 70).

Recording – Basics Запись – Основные положения

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Recording a picture

Notes

- Do not use the NightShot function in bright places (ex. outdoors in the daytime). This may cause your camcorder to malfunction.
- When you keep NIGHTSHOT set to ON in normal recording, the picture may be recorded in incorrect or unnatural colours.
- If focusing is difficult with the autofocus mode when using the NightShot function, focus manually.

While using the NightShot function, you can not use the following functions:

- Exposure
- PROGRAM AE
- Fader* (CCD-TRV87E only)
- Digital effect* (CCD-TRV87E only)
- * You cannot use these functions only in the Super NightShot mode.

Shutter speed in the Super NightShot mode (CCD-TRV87E only)

The shutter speed will be automatically changed depending on the brightness of the scene.

The SUPER NIGHTSHOT button does not work (CCD-TRV87E only):

- while the fader function is set or in use
- while the digital effect function is in use
- when NIGHTSHOT is set to OFF

NightShot Light

NightShot Light rays are infrared and so are invisible. The maximum shooting distance using the NightShot Light is about 3 m (10 feet). The shooting distance will be twice or more in the Super NightShot mode (CCD-TRV87E only).

Запись изображения

Примечания

- Не используйте функцию ночной съемки в ярких местах (например, на улице в дневное время). Это может привести к неисправности Вашей видеокамеры.
- Если Вы удерживаете NIGHTSHOT в положении ON во время нормальной записи, изображение может быть записано в неправильных или ненатуральных цветах.
- Если фокусировка затруднена в автоматическом режиме при использовании функции ночной съемки, выполните фокусировку вручную.

При использовании функции ночной съемки Вы не можете использовать следующие функции:

- Экспозиция
- PROGRAM AE
- Фейдер* (только модель CCD-TRV87E)
- Цифровой эффект* (только модель CCD-TRV87E)

* Вы не можете использовать эти функции только в режиме ночной суперсъемки.

Скорость затвора в режиме ночной суперсъемки (только модель CCD-TRV87E)
Скорость затвора будет автоматически изменяться в зависимости от яркости сцены.

Кнопка SUPER NIGHTSHOT не работает (только модель CCD-TRV87E):

- если установлена или используется функция фейдера
- если используется функция цифрового эффекта
- если переключатель NIGHTSHOT установлен в положение OFF

Подсветка для ночной съемки

Лучи подсветки для ночной съемки являются инфракрасными и поэтому невидимыми. Максимальное расстояние для съемки при использовании подсветки для ночной съемки равно примерно 3 м.
Расстояние для съемки будет в два или более раз больше в режиме ночной суперсъемки (только модель CCD-TRV87E).

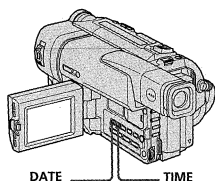
Recording a picture

Superimposing the date and time on pictures

You can record the date or time displayed in the viewfinder or on the LCD screen superimposed on the picture. Carry out the following operations in the standby or recording mode.

Press DATE to record the date.
Press TIME to record the time.
Press DATE (or TIME), then press TIME (or DATE) to record the date and time.

Press DATE and/or TIME again. The date and/or time indicator disappears.



The default clock setting is set to London time for United Kingdom and to Paris time for the other European countries. You can reset the clock in the menu settings (p. 70).

Note

The date and time indicators recorded manually cannot be deleted.

If you do not record the date and time in the picture

Record the date and time in the black screen as the background for about 10 seconds, then erase the date and time indicators before starting actual recording.

Запись изображения

Наложение даты и времени на изображения

Вы можете записывать дату или время, отображаемые в видоискателе или на экране ЖКД, которые будут наложены на изображение. Выполните следующие операции в режиме ожидания или записи.

Нажмите кнопку DATE для записи даты. Нажмите кнопку TIME для записи даты. Нажмите кнопку DATE (или TIME), затем нажмите кнопку TIME (или DATE) для записи даты и времени.

Нажмите кнопку DATE и/или TIME еще раз. Индикатор даты и/или времени исчезнет.

Часы установлены по умолчанию на время Лондона для Соединенного Королевства и на время Парижа для других европейских стран. Вы можете переустановить часы в установках меню (стр. 70).

Примечание

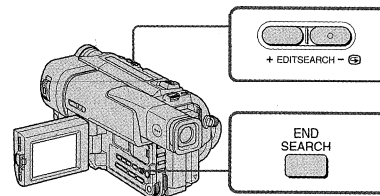
Индикаторы даты и времени, записанные вручную, не могут быть удалены.

Если Вы не записываете дату и время на изображении

Запишите дату и время на фоне черного экрана в течение 10 секунд, затем сотрите индикаторы даты и времени перед тем, как начать действительную запись.

Checking the recording - END SEARCH / EDITSEARCH / Rec Review

You can use these buttons to check the recorded picture or shoot so that the transition between the last recorded scene and the next scene you record is smooth.



END SEARCH

You can go to the end of the recorded section after you record.

Press END SEARCH in the standby mode. The last 5 seconds of the recorded section are played back and playback stops. You can monitor the sound from the speaker, headphones (CCD-TRV87E only) or an earphone (CCD-TRV37E/TRV48E/TRV57E/TRV67E only).

Note

If you start recording after using the end search function, occasionally, the transition between the last scene you recorded and the next scene may not be smooth.

Once you eject the cassette after you have recorded on the tape

The end search function does not work.

Проверка записи - END SEARCH / EDITSEARCH / Просмотр записи

Вы можете использовать эти кнопки для проверки записанного изображения или сценки, так чтобы переход между последним записанным эпизодом и следующим записываемым эпизодом был плавным.

END SEARCH

Вы можете дойти до конца записанной части ленты после выполнения записи.

Нажмите END SEARCH в режиме ожидания. Последние 5 секунд записанной части будут воспроизведены и воспроизведение остановится. Вы можете контролировать звук через акустическую систему, головные телефоны (только модель CCD-TRV87E) или наушники (только модель CCD-TRV37E/TRV48E/TRV57E/TRV67E).

Примечание

Если Вы случайно начнете запись после использования функции поиска конца записи, переход между последней записанной сценой и следующей записываемой сценой может не быть плавным.

Если Вы вынули кассету после записи на ленту функция поиска конца записи работать не будет.

Checking the recording - END SEARCH / EDITSEARCH / Rec Review

EDITSEARCH

You can search for the next recording start point.

Hold down the +/-(⊞) side of EDITSEARCH in the standby mode. The recorded section is played back.

+ : to go forward
- : to go backward

Release EDITSEARCH to stop playback. If you press START/STOP, re-recording begins from the point you released EDITSEARCH. You cannot monitor the sound.

Rec Review

You can check the last recorded section.

Press the -(⊞) side of EDITSEARCH momentarily in the standby mode. The last few seconds of the recorded section are played back. You can monitor the sound from the speaker, headphones (CCD-TRV87E only) or an earphone (CCD-TRV37E/TRV48E/TRV57E/TRV67E only).

Проверка записи - END SEARCH / EDITSEARCH / Просмотр записи

EDITSEARCH

Вы можете выполнять поиск места начала следующей записи.

Держите нажатой сторону +/-(⊞) кнопки EDITSEARCH в режиме ожидания. Будет воспроизведена записанная часть.

+ : для продвижения вперед
- : для продвижения назад

Отпустите кнопку EDITSEARCH для остановки воспроизведения. Если Вы нажмете кнопку START/STOP, начнется перезапись с того места, где Вы отпустили кнопку EDITSEARCH. Вы не можете контролировать звук.

Просмотр записи

Вы можете проверить последнюю записанную часть.

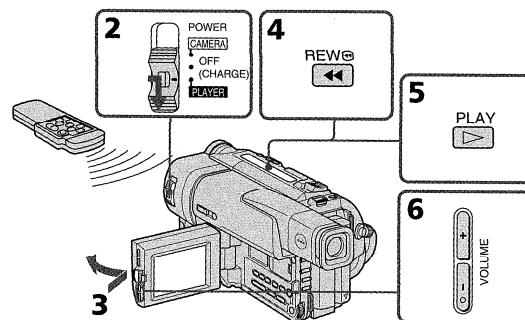
Нажмите кратковременно сторону -(⊞) кнопки EDITSEARCH в режиме ожидания. Последние несколько секунд записанной части будут воспроизведены и воспроизведение остановится. Вы можете контролировать звук через акустическую систему, головные телефоны (только модель CCD-TRV87E) или наушники (только модель CCD-TRV37E/TRV48E/TRV57E/TRV67E).

- Playback - Basics -

Playing back a tape

You can monitor the playback picture on the LCD screen or in the viewfinder. If you close the LCD panel, you can monitor the playback picture in the viewfinder. You can control playback using the Remote Commander supplied with your camcorder. (CCD-TRV48E/TRV57E/TRV67E only)

- (1) Install the power source and insert the recorded tape.
- (2) Set the POWER switch to PLAYER while pressing the small green button.
- (3) Open the LCD panel while pressing OPEN.
- (4) Press ◀◀ to rewind the tape.
- (5) Press ▶▶ to start playback.
- (6) To adjust the volume, press either of the two buttons on VOLUME. The speaker on your camcorder is silent when the LCD panel is closed.



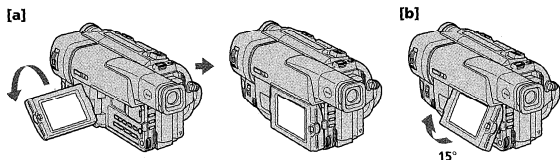
To stop playback Press ■.

Для остановки воспроизведения Нажмите кнопку ■.

Playing back a tape

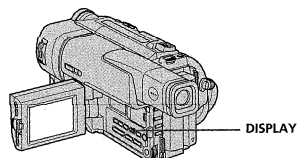
When monitoring on the LCD screen

You can turn the LCD panel over and move it back to the camcorder body with the LCD screen facing out [a]. You can adjust the angle of the LCD panel by lifting the LCD panel up by 15 degrees [b].



To control the display of the screen indicators

Press DISPLAY on your camcorder or the Remote Commander (CCD-TRV48E/TRV57E/TRV67E/TRV87E only) supplied with your camcorder. The indicators appear on the LCD screen. To make the indicators disappear, press DISPLAY again.



Воспроизведение ленты

Во время контроля на экране ЖКД Вы можете повернуть панель управления и придвинуть ее обратно на место к корпусу видеокамеры, так что экран ЖКД будет обращен наружу [a]. Вы можете отрегулировать угол панели ЖКД, подняв панель ЖКД вверх на 15 градусов [b].

Для управления дисплеем экранных индикаторов

Нажмите кнопку DISPLAY на Вашей видеокамере или на пульте дистанционного управления (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E), который прилагается к Вашей видеокамере. На экране ЖКД появятся индикаторы. Для того, чтобы индикаторы исчезли, нажмите еще раз кнопку DISPLAY.

Playback - Basics Воспроизведение - Основные положения

Playing back a tape

Various playback modes

To operate video control buttons, set the POWER switch to PLAYER.

To view a still picture (playback pause)

Press **II** during playback. To resume playback, press **II** or **▶**.

To advance the tape

Press **▶▶** in the stop mode. To resume normal playback, press **▶**.

To rewind the tape

Press **◀◀** in the stop mode. To resume normal playback, press **▶**.

To locate a scene monitoring the picture (picture search)

Keep pressing **◀◀** or **▶▶** during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing or rewinding the tape (skip scan)

Keep pressing **◀◀** while rewinding or **▶▶** while advancing the tape. To resume normal playback, release the button.

To view the picture at slow speed (slow playback)

CCD-TRV48E/TRV57E/TRV67E/TRV87E only
Press **III** on the Remote Commander during playback. To resume normal playback, press **▶**.

To search the last scene recorded (END SEARCH)

Press END SEARCH in the stop mode. The last 5 seconds of the recorded section plays back and stops.

Воспроизведение ленты

Переменные режимы воспроизведения

Для управления кнопками видеоконтроля, установите переключатель POWER в положение PLAYER.

Для просмотра неподвижного изображения (пауза воспроизведения)

Нажмите во время воспроизведения кнопку **II**. Для возобновления обычного воспроизведения нажмите кнопку **II** или кнопку **▶**.

Для ускоренной перемотки ленты вперед

Нажмите в режиме остановки кнопку **▶▶**. Для возобновления обычного воспроизведения нажмите кнопку **▶**.

Для ускоренной перемотки ленты назад

Нажмите в режиме остановки кнопку **◀◀**. Для возобновления обычного воспроизведения нажмите кнопку **▶**.

Для обнаружения эпизода при контроле изображения (поиск изображения)

Держите нажатой кнопку **◀◀** или **▶▶** во время воспроизведения. Для возобновления обычного воспроизведения отпустите кнопку.

Для контроля изображения на высокой скорости во время ускоренной перемотки ленты вперед или назад (поиск методом прогона)

Держите нажатой кнопку **◀◀** во время ускоренной перемотки ленты назад или кнопку **▶▶** во время ускоренной перемотки ленты вперед. Для возобновления обычной перемотки ленты вперед или назад отпустите кнопку.

Для просмотра изображения на медленной скорости (замедленное воспроизведение)

CCD-TRV48E/TRV57E/TRV67E/TRV87E

Нажмите во время воспроизведения кнопку **III** на пульте дистанционного управления. Для возобновления обычного воспроизведения нажмите кнопку **▶**.

Для поиска последнего записанного эпизода (END SEARCH)

Нажмите в режиме остановки кнопку END SEARCH. Будут воспроизведены последние 5 секунд записанной части, и воспроизведение остановится.

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Playing back a tape

In the various playback modes

Sound is muted.

When the playback pause mode lasts for 5 minutes

Your camcorder automatically enters the stop mode. To resume playback, press **▶**.

If slow playback lasts for about 1 minute (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)

Your camcorder automatically returns to normal speed.

When you play back a tape recorded in the LP mode

Noise may appear during playback pause mode, slow playback (CCD-TRV48E/TRV57E/TRV67E/TRV87E only) or picture search.

The tapes recorded in the Hi8 format (CCD-TRV37E/TRV48E/TRV57E only)

You can play back the tapes recorded in the Hi8 video system on your camcorder.

Воспроизведение ленты

В переменных режимах воспроизведения

Если режим паузы воспроизведения продлится 5 минут

Ваша видеокамера автоматически войдет в режим остановки. Для возобновления воспроизведения воспроизведения нажмите кнопку **▶**.

Если замедленное воспроизведение продлится около 1 минуты (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E)

Ваша видеокамера автоматически переключится на нормальную скорость.

При воспроизведении ленты, записанной в режиме LP

В режиме паузы воспроизведения, замедленного воспроизведения (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E) или поиска изображения могут появиться помехи.

Ленты, записанные в формате Hi8 (только модель CCD-TRV37E/TRV48E/TRV57E)
Вы можете воспроизводить на Вашей видеокамере ленты, записанные в видеосистеме Hi8.

Playback - Basics Воспроизведение - Основные положения

Viewing the recording on TV

Connect your camcorder to your TV or VCR with the A/V connecting cable supplied with your camcorder to watch the playback picture on the TV screen. You can operate the playback control buttons in the same way as when you monitor playback pictures on the LCD screen. When monitoring the playback picture on the TV screen, we recommend that you power your camcorder from the mains using the AC power adaptor (p. 19). Refer to the operating instructions of your TV or VCR.

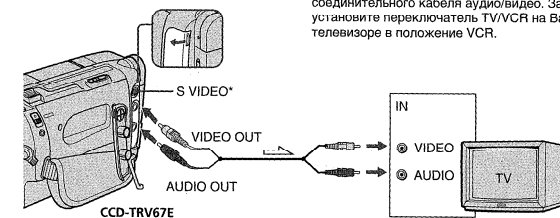
Open the jack cover. Connect your camcorder to the TV using the A/V connecting cable. Then, set the TV/VCR selector on the TV to VCR.

Просмотр записи на экране телевизора

Подсоедините Вашу видеокамеру к Вашему телевизору или VCR с помощью соединительного кабеля аудио/видео, который прилагается к Вашей видеокамере для просмотра воспроизводимого изображения на экране телевизора. Вы можете оперировать кнопками управления воспроизведением таким же способом, как при управлении воспроизводимым изображением на экране ЖКД. При управлении воспроизводимым изображением на экране телевизора рекомендуется подключить питание к Вашей видеокамере от сетевой розетки с помощью сетевого адаптера переменного тока (стр. 19). См. инструкцию по эксплуатации Вашего телевизора или VCR.

Откройте крышку гнезд. Подсоедините Вашу видеокамеру к телевизору с помощью соединительного кабеля аудио/видео. Затем, установите переключатель TV/VCR на Вашем телевизоре в положение VCR.

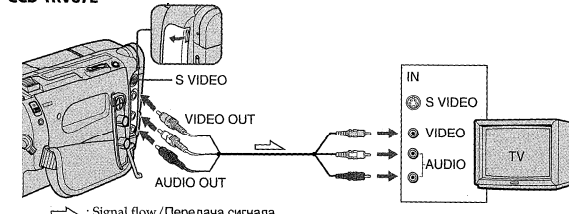
CCD-TRV37E/TRV48E/TRV57E/TRV67E



→ : Signal flow / Передача сигнала

* CCD-TRV67E only / только модель CCD-TRV67E

CCD-TRV87E



→ : Signal flow / Передача сигнала

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Viewing the recording on TV

If your TV is already connected to a VCR

Connect your camcorder to the LINE IN input on the VCR by using the A/V connecting cable supplied with your camcorder. Set the input selector on the VCR to LINE.

If your TV or VCR is a monaural type

– CCD-TRV87E only

Connect the yellow plug for video and the white plug for audio on both your camcorder and the TV or the VCR (you do not connect the red plug). With this connection, the sound is monaural.

If your TV/VCR has a 21-pin connector (EUROCONNECTOR)

Use the 21-pin adaptor supplied with your camcorder.



To connect to a TV or VCR without Video/Audio input jacks

Use a PAL system RFU adaptor (not supplied). Refer to the operating instructions of your TV or VCR and the RFU adaptor. With an RFU adaptor, the sound is monaural even on stereo models.

If your TV or VCR has an S video jack (CCD-TRV67E/TRV87E only)

Connect using an S video cable (not supplied) to obtain high-quality pictures. With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable. Connect the S video cable (not supplied) to the S video jacks on both your camcorder and the TV or the VCR.

Monitoring the picture from a TV or VCR (CCD-TRV87E only)

You can monitor the picture on the LCD screen. Connect your camcorder to the outputs on the TV or VCR.

Просмотр записи на экране телевизора

Если Ваш телевизор уже подсоединен к KBM

Подсоедините Вашу видеокамеру к входному гнезду LINE IN на KBM с помощью соединительного кабеля аудио/видео, который прилагается к Вашей видеокамере. Установите селектор входного сигнала на KBM в положение LINE.

Если Ваш телевизор или KBM монофонического типа

– Только модель CCD-TRV87E

Подсоедините желтый штекер для видеосигнала и белый штекер для аудиосигнала к Вашей видеокамере и телевизору или KBM (Вам не нужно подсоединять красный штекер). При данном соединении звук будет монофоническим.

Если в Вашем телевизоре/KBM имеется 21-штырьковый разъем (EUROCONNECTOR)

Используйте 21-штырьковый, прилагаемый к Вашему компьютеру.



Для подсоединения к Вашему телевизору или KBM без входных гнезд аудио/видео

Используйте ВЧ-адаптер системы PAL (не прилагается). Смотрите инструкцию по эксплуатации Вашего телевизора или KBM и ВЧ-адаптера. При использовании ВЧ-адаптера звук будет монофоническим даже на стереофонических моделях.

Если в Вашем телевизоре или KBM имеется гнездо S видео (только модель CCD-TRV67E/TRV87E)

Выполните соединение с помощью кабеля S видео (не прилагается) для получения высококачественного изображения. При данном соединении Вам не нужно подсоединять желтый штекер (видео) соединительного кабеля аудио/видео. Подсоедините кабель S видео (не прилагается) к гнездам S видео на Вашей видеокамере и Вашем телевизоре или KBM.

Контроль изображения от телевизора или KBM (только модель CCD-TRV87E)

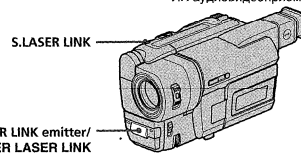
Вы можете контролировать изображение на экране ЖКД. Подсоедините Вашу видеокамеру к выходным гнездам на телевизоре или KBM.

Viewing the recording on TV

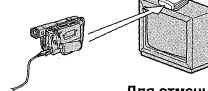
Using the AV cordless IR receiver

– CCD-TRV87E only

Once you connect the AV cordless IR receiver (not supplied) to your TV or VCR, you can easily view the picture on your TV. For details, refer to the operating instructions of the AV cordless IR receiver.



- After connecting your TV and AV cordless IR receiver, set the POWER switch on the AV cordless IR receiver to ON.
- Turn the TV on and set the TV/VCR selector on the TV to VCR.
- Press S.LASER LINK. The lamp of S.LASER LINK lights up.
- Press ► on your camcorder to start playback.
- Point the SUPER LASER LINK emitter at the AV cordless IR receiver. Adjust the position of your camcorder and the AV cordless IR receiver to obtain clear playback pictures.



To cancel the super laser link function

Press S.LASER LINK. The lamp on the S.LASER LINK button goes out.

If you turn the power off

Super laser link turns off automatically.

Note

When super laser link is activated (the S.LASER LINK button is lit), your camcorder consumes power. Press S.LASER LINK to turn off the super laser link function when it is not needed.

Просмотр записи на экране телевизора

Использование беспроводного ИК аудиовидеоприемника

– Только модель CCD-TRV87E

После подсоединения беспроводного ИК аудиовидеоприемника к Вашему телевизору (не прилагается) Вы можете легко наблюдать изображение на экране Вашего телевизора. Подробные сведения содержатся в инструкции по эксплуатации беспроводного ИК аудиовидеоприемника.

- После подсоединения к Вашему телевизору беспроводного ИК аудиовидеоприемника установите переключатель POWER на беспроводном ИК аудиовидеоприемнике в положение ON.
- Включите телевизор и установите селектор TV/VCR на телевизоре в положение VCR.
- Нажмите кнопку S.LASER LINK. Высветится лампочка S.LASER LINK.
- Нажмите кнопку ► на Вашей видеокамере для начала включения воспроизведения.
- Направьте излучатель SUPER LASER LINK на беспроводный ИК аудиовидеоприемник. Отрегулируйте положение Вашей видеокамеры и беспроводного ИК аудиовидеоприемника для получения четкого воспроизводимого изображения.

Для отмены функции лазерного суперканала передачи сигналов

Нажмите кнопку S.LASER LINK. Лампочка на кнопке S.LASER LINK погаснет.

Если Вы выключите питание Лазерный суперканал передачи сигналов выключится автоматически.

Примечание

При включенном лазерном канале передачи сигналов (при этом высвечивается кнопка S.LASER LINK) Ваша видеокамера потребляет питание. Нажмите кнопку S.LASER LINK для выключения функции лазерного суперканала передачи сигналов, если она не требуется.

— Advanced Recording Operations —

Recording a still image on a tape – Tape Photo recording

– CCD-TRV87E only

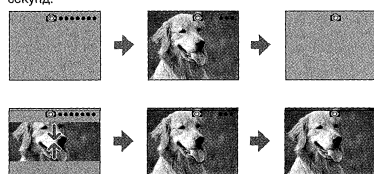
You can record a still picture like a photograph. This mode is useful when you want to record a picture such as a photograph or when you print a picture using a video printer (not supplied).

NORMAL PHOTO/ ОБЫЧНОЕ ФОТО

FADE PHOTO/ ФОТО С ВВЕДЕНИЕМ/ ВЫВЕДЕНИЕМ

SHUTTER PHOTO/ ФОТО С ЗАТВОРОМ

This mode records a still picture for about seven seconds. / В этом режиме неподвижное изображение записывается около семи секунд.



- While your camcorder is in the standby mode, select the photo mode in the menu settings (p. 70).
- Keep pressing PHOTO lightly until a still picture appears. The CAPTURE indicator appears. Recording does not start yet. To change the still picture, release PHOTO, select a still picture again, and then press and hold PHOTO lightly.
- Press PHOTO deeper. The still picture in the viewfinder or on the LCD screen is recorded for about seven seconds. The sound during those seven seconds is also recorded. The still image is displayed in the viewfinder or on the LCD screen until recording is completed.

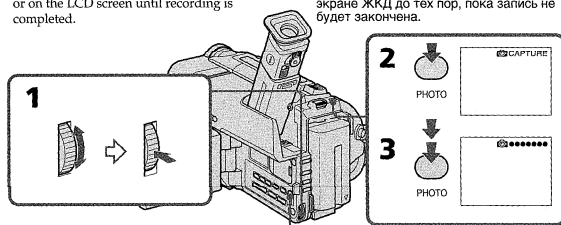
— Усовершенствованные операции съемки —

Запись неподвижного изображения на ленту — фотосъемка на ленту

Только модель CCD-TRV87E

Вы можете записывать неподвижное изображение подобно фотографии. Данный режим полезен, если Вы хотите записывать изображение в виде фотоснимка или же при выполнении отпечатков с помощью видеопринтера (не прилагается).

- В то время, когда Ваша видеокамера находится в режиме ожидания, выберите фоторежим в установках меню (стр. 70).
- Держите слегка нажатой кнопку PHOTO до тех пор, пока не появится неподвижное изображение. Появится индикация CAPTURE. Запись пока еще не началась. Для изменения неподвижного изображения отпустите кнопку PHOTO, выберите неподвижное изображение снова, а затем нажмите и держите слегка нажатой кнопку PHOTO.
- Нажмите кнопку PHOTO сильнее. Неподвижное изображение в видоискателе или на экране ЖКД будет записываться около семи секунд. В течение этих семи секунд будет записываться и звук. Неподвижное изображение будет отображаться в видоискателе или на экране ЖКД до тех пор, пока запись не будет закончена.



Recording a still image on a tape – Tape Photo recording

Notes

- During tape photo recording, you cannot change the mode or setting of the following functions:
 - Digital effect
 - Fader
 - PROGRAM AE
 - Picture effect
 - Exposure
 - Wide mode
 - Backlight
 - Super NightShot
- The PHOTO button does not work:
 - while the digital effect function is set or in use.
 - while the fader function is in use.
- When recording a still picture, do not shake your camcorder. The picture may fluctuate.

To use the tape photo recording function during normal CAMERA recording Press PHOTO deeper. The still picture is then recorded for about seven seconds and your camcorder returns to the standby mode. You cannot select another still picture.

Запись неподвижного изображения на ленту — фотосъемка на ленту

Примечания

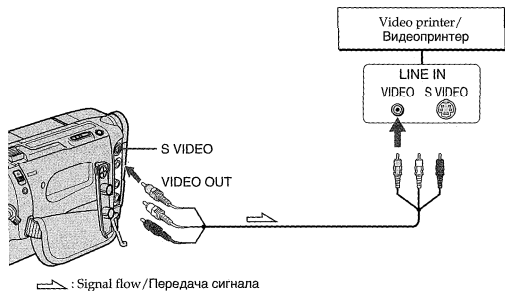
- Во время фотосъемки на ленту Вы не можете изменять режим или установку следующих функций:
 - Цифровой эффект
 - Фейдер
 - PROGRAM AE
 - Эффект изображения
 - Экспозиция
 - Широкоэкранный режим
 - Задняя подсветка
 - Ночная суперсъемка
- Кнопка PHOTO не работает:
 - если установлена или используется функция цифрового эффекта.
 - если используется функция фейдера.
- При записи неподвижного изображения не трясите Вашу видеокамеру. Изображение может быть неустойчивым.

Для использования функции фотосъемки на ленту во время обычной записи в режиме CAMERA Нажмите кнопку PHOTO сильнее. Неподвижное изображение будет записываться около семи секунд, а затем видеокамера вернется в режим ожидания. Вы не сможете при этом выбрать другое неподвижное изображение.

Recording a still image on a tape – Tape Photo recording

Printing the still picture

You can print a still picture by using the video printer (not supplied). Connect the video printer using the A/V connecting cable supplied with your camcorder. Connect the yellow plug of the cable to the video jack on both your camcorder and the video printer. Refer to the operating instructions of the video printer as well.

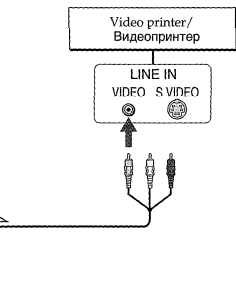


If the video printer is equipped with S video input
Use the S video connecting cable (not supplied). Connect it to the S VIDEO jack and the S video input of the video printer.

Запись неподвижного изображения на ленту – фотосъемка на ленту

Печатаие неподвижного изображения

Вы можете напечатать неподвижное изображение с помощью видеопринтера (не прилагается). Подсоедините видеопринтер с использованием соединительного кабеля аудио/видео, прилагаемого к Вашей видеокамере. Подсоедините желтый разъем кабеля к видеопорту на Вашей видеокамере и видеопринтере. Смотрите также инструкции по эксплуатации видеопринтера.



Если видеопринтер оснащен входом S-видео
Используйте соединительный кабель S-видео (не прилагается). Подсоедините его к гнезду S-VIDEO и входу S-видео на видеопринтере.

Advanced Recording Operations Усовершенствованные операции съемки

Using the wide mode

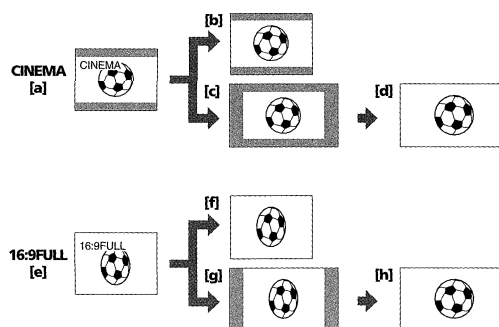
You can record a cinema-like picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9FULL). Refer to the operating instructions of your TV.

CINEMA

Black bands appear on the screen during recording in the CINEMA mode [a], playing back on a normal TV [b] or a wide-screen TV [c]. If you set the screen mode of the wide-screen TV to the zoom mode, a picture without black bands appears [d].

16:9FULL

The picture during recording in the 16:9FULL mode [e], or playing back on a normal TV [f] or a wide-screen TV [g] is horizontally compressed. If you set the screen mode of the wide-screen TV to the full mode, you can watch pictures of normal images [h].



Использование широко- экранного режима

Вы можете записывать изображение наподобие кино (CINEMA) или широкоэкранное изображение 16:9 для просмотра на широкоэкранном телевизоре 16:9 (16:9FULL). Обратитесь к инструкции по эксплуатации Вашего телевизора.

CINEMA

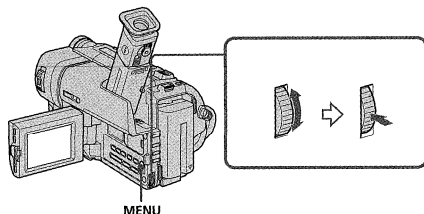
Черные полосы появляются на экране во время записи в режиме CINEMA [a], воспроизведения на обычном телевизоре [b] или на широкоэкранном телевизоре [c]. Если Вы установите экранный режим на широкоэкранном телевизоре в режим масштабирования, то изображение появится без черных полос [d].

16:9FULL

Изображение во время записи в режиме 16:9 FULL [e], либо во время воспроизведения на обычном телевизоре [f] или широкоэкранном телевизоре [g] будет сжато по горизонтали. Если Вы установите экранный режим широкоэкранного телевизора в полноэкранный режим, Вы можете просматривать изображения обычных съемок [h].

Using the wide mode

In the standby mode, set 16:9WIDE to CINEMA or 16:9FULL in the menu settings (p. 70).



To cancel the wide mode

Set 16:9WIDE to OFF in the menu settings.

If the wide mode is set to 16:9FULL (CCD-TRV57E/TRV67E/TRV87E only)

The SteadyShot function does not work. If you select 16:9FULL in the menu settings when the SteadyShot function is working, "S" flashes and the SteadyShot function does not function.

In the wide mode

You cannot select the old movie function with DIGITAL EFFECT (CCD-TRV87E only) and the bounce function with FADER.

Date or time indicator

When you record in the 16:9FULL mode, the date or time indicator will be widened on wide-screen TVs.

During recording

You cannot change or cancel the wide mode. When you cancel the wide mode, set your camcorder to the standby mode and then set 16:9WIDE to OFF.

Использование широкоэкранного режима

В режиме ожидания установите 16:9WIDE в положение CINEMA или 16:9FULL в установках меню (стр. 70).

Для отмены широкоэкранного режима

Установите команду 16:9WIDE в положение OFF в установках меню.

Если широкоэкранный режим установлен в положение 16:9FULL (только модель CCD-TRV57E/TRV67E/ TRV87E)

Функция устойчивой съемки не работает. Если Вы выберете команду 16:9FULL в установках меню в то время, когда работает функция устойчивой съемки, начнет мигать индикация "S", и функция устойчивой съемки работать не будет.

В широкоэкранном режиме

Вы не можете выбрать функцию старинного кино с помощью команды DIGITAL EFFECT (только модель CCD-TRV87E) и функцию перекашивания с помощью команды FADER.

Индикатор даты или времени

Если Вы выполняете запись в режиме 16:9FULL, индикатор даты или времени расширится на широкоэкранном телевизоре.

Во время записи

Вы не можете изменить или отменить широкоэкранный режим. Для отмены широкоэкранного режима установите Вашу видеокамеру в режим ожидания, а затем установите 16:9WIDE на OFF.

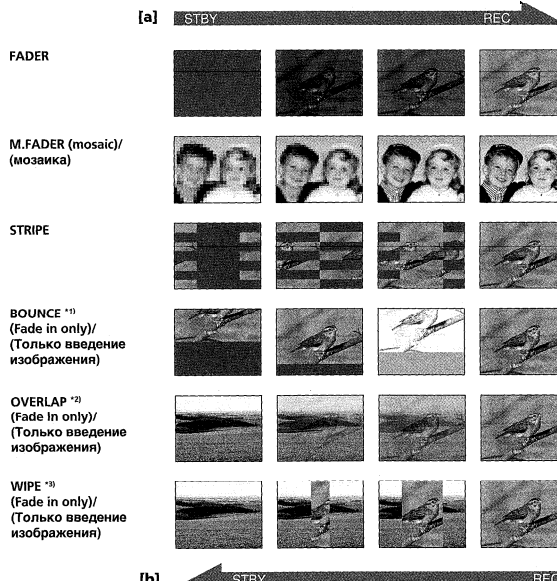
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Advanced Recording Operations Усовершенствованные операции съемки

Using the fader function

You can fade in or out to give your recording a professional appearance.



MONOTONE

When fading in, the picture gradually changes from black-and-white to colour. When fading out the picture gradually changes from colour to black-and-white.

**You can use this function only when D ZOOM is set to OFF.

**CCD-TRV87E only

**CCD-TRV87E only. The sound does not wipe away.

Использование функции фейдера

Вы можете выполнять плавное введение и выводение изображения, чтобы придать Вашей съемке профессиональный вид.

MONOTONE

При введении изображение будет постепенно изменяться от черно-белого до цветного. При выведении изображение будет постепенно изменяться от цветного до черно-белого.

** Вы можете использовать эту функцию только при установке команды D ZOOM на OFF.

** Только модель CCD-TRV87E

** Только модель CCD-TRV87E. Звук при этом не убирается.

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Using the fader function

(1) When fading in [a]

In the standby mode, press FADER until the desired fader indicator flashes.

When fading out [b]

In the recording mode, press FADER until the desired fader indicator flashes.

The indicator changes as follows:
FADER → M.FADER → STRIPE →
BOUNCE → MONOTONE → OVERLAP
(CCD-TRV87E only) → WIPE (CCD-TRV87E
only) → no indicator
The last selected fader mode is indicated first
of all.

(2) Press START/STOP. The fader indicator stops
flashing.

Использование функции фейдера

(1) При введении изображения [a]

В режиме ожидания, нажимайте кнопку
FADER до тех пор, пока не начнет мигать
нужный индикатор фейдера.

При выведении изображения [b]

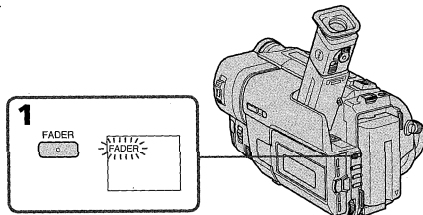
В режиме записи, нажимайте кнопку
FADER до тех пор, пока не начнет мигать
нужный индикатор фейдера.

Индикатор будет изменяться следующим
образом:

FADER → M.FADER → STRIPE →
BOUNCE → MONOTONE → OVERLAP
(только модель CCD-TRV87E) → WIPE
(только модель CCD-TRV87E) → без
индикатора

Последний из выбранных режимов
фейдера отображается первым.

(2) Нажмите кнопку START/STOP. Индикатор
фейдера перестанет мигать.



To cancel the fader function

After the fade in/out is carried out : Your
camcorder automatically returns to the normal
mode.

Before the fade in/out is carried out : Before
pressing START/STOP, press FADER until the
indicator disappears.

Для отмены функции фейдера

После того, как выполнено введение/
выведение изображения: Ваша видеокамера
автоматически вернется в обычный режим.
Перед тем, как выполнить введение/
выведение изображения: Перед тем, как
нажать кнопку START/STOP, нажимайте
кнопку FADER до тех пор, пока не исчезнет
индикатор.

Using the Fader function

Note (CCD-TRV87E only)

You cannot use the following functions while
using the fader function. Also, you cannot use
the fader function while using the following
functions.

- Digital effect
- Low lux mode of PROGRAM AE (Overlap/
Wipe function only)
- Super NightShot
- Tape Photo recording

The date, time indicator and title do not fade in or fade out

Erase them before operating the fader function if
they are not needed.

If you do not record anything before operating the wipe or overlap function (CCD-TRV87E only)

Your camcorder stores the image on the tape. As
the image is being stored, the WIPF or OVERLAP
indicator flashes quickly, and the picture you are
shooting disappears from the viewfinder.
Depending on the tape condition, the picture
may not be recorded clearly.

While using the bounce function, you cannot use the following functions:

- Exposure
- Focus
- Zoom
- Picture effect

Note on the bounce function

The BOUNCE indicator does not appear in the
following mode or functions:

- D ZOOM is set to the mode other than OFF in
the menu settings
- Wide mode
- Picture effect
- PROGRAM AE

Использование функции фейдера

Примечание (только модель CCD-TRV87E)

Вы не можете использовать следующие
функции во время использования функции
фейдера. Также, Вы не можете использовать
функцию фейдера во время использования
следующих функций.

- Цифровой эффект
- Режим низкой освещенности PROGRAM AE
(только функция наложения/вытеснения
изображения шторкой)
- Ночная суперсъемка
- Фотосъемка на ленту

Индикатор даты, времени и титр не вводятся и не выводятся вместе с изображением

Удалите их перед тем, как включить
функцию фейдера, если они не нужны.

Если Вы не записывали ничего перед включением функции вытеснения шторкой или наложения изображения (только модель CCD-TRV87E)

Ваша видеокамера хранит изображение на
ленте. Во время сохранения изображения
индикатор WIPE или OVERLAP будет быстро
мигать, а изображение, которое Вы снимаете,
исчезнет в видоискателе. В зависимости от
состояния ленты, изображение может быть
записано нечетко.

Во время использования функции перескакивания Вы не можете использовать следующие функции:

- Экспозиция
- Фокусировка
- Трансформация
- Эффект изображения

Примечание по функции перескакивания

Индикатор BOUNCE не появляется в
следующих режимах или при использовании
следующих функций:

- Команда D ZOOM установлена на режим,
отличный от OFF в установках меню
- Широкоэкранный режим
- Эффект изображения
- PROGRAM AE

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Using special effects - Picture effect

You can digitally process images to obtain special
effects like those in films or on the TV.

- PASTEL [a] :** The contrast of the picture is
emphasized, and the picture
looks like an animated cartoon.
- NEG. ART [b] :** The colour and brightness of the
picture is reversed.
- SEPIA :** The picture is sepia.
- B&W :** The picture is monochrome
(black-and-white).
- SOLARIZE [c] :** The light intensity is clearer, and
the picture looks like an
illustration.
- MOSAIC [d] :** The picture is mosaic.
- SLIM [e] :** The picture expands vertically.
- STRETCH [f] :** The picture expands
horizontally.

Использование специальных эффектов - Эффект изображения

Вы можете выполнять обработку
изображения цифровым методом для
получения специальных эффектов, как в
кинофильмах или на экранах телевизоров.

- PASTEL [a] :** Подчеркивается
контрастность изображения,
которому придается
мультипликационный вид.
- NEG. ART [b] :** Цвет и яркость изображения
будут негативными.
Изображение будет в цвете
сепии.
- SEPIA :** Изображение будет
монохроматическим (черно-
белым).
- B&W :** Изображение будет
монохроматическим (черно-
белым).
- SOLARIZE [c] :** Яркость света будет
усиленной, а изображение
будет выглядеть как
иллюстрация.
- MOSAIC [d] :** Изображение будет
мозаичным.
- SLIM [e] :** Изображение растянется по
вертикали.
- STRETCH [f] :** Изображение растянется по
горизонтали.



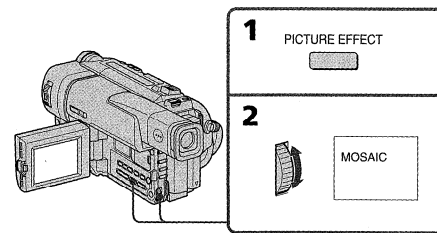
Using special effects - Picture effect

(1) Press PICTURE EFFECT in the standby or
recording mode.

The picture effect indicator appears.

(2) Turn the SEL/PUSH EXEC dial to select the
desired picture effect mode.

The indicator changes as follows:
PASTEL ↔ NEG.ART ↔ SEPIA ↔
B&W ↔ SOLARIZE ↔ MOSAIC ↔
SLIM ↔ STRETCH



To turn the picture effect function off

Press PICTURE EFFECT.

While using the picture effect function (CCD-TRV87E only)

You cannot select the old movie mode with
DIGITAL EFFECT.

When you turn the power off

Your camcorder automatically returns to the
normal mode.

Использование специальных эффектов - Эффект изображения

(1) Нажмите кнопку PICTURE EFFECT в
режиме ожидания или режиме записи.

Появится индикатор эффекта
изображения.

(2) Поверните диск SEL/PUSH EXEC для
выбора режима нужного эффекта
изображения.

Индикатор будет изменяться следующим
образом:
PASTEL ↔ NEG.ART ↔ SEPIA ↔
B&W ↔ SOLARIZE ↔ MOSAIC ↔
SLIM ↔ STRETCH

Для выключения функции эффекта изображения

Нажмите кнопку PICTURE EFFECT.

При использовании функции эффекта изображения (только модель CCD-TRV87E)

Вы не можете выбрать режим старинного
кино с помощью команды DIGITAL EFFECT.

Если Вы выключите питание

Ваша видеокамера автоматически вернется
в обычный режим.

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Using special effects – Digital effect

– CCD-TRV87E only

You can add special effects to recorded pictures using the various digital functions. The sound is recorded normally.

STILL

You can record a still picture so that it is superimposed on a moving picture.

FLASH (FLASH MOTION)

You can record still pictures successively at constant intervals.

LUMI. (LUMINANCEKEY)

You can swap a brighter area in a still picture with a moving picture.

TRAIL

You can record the picture so that an incidental image like a trail is left.

SLOW SHTR (SLOW SHUTTER)

You can slow down the shutter speed. The slow shutter mode is good for recording dark pictures more brightly.

OLD MOVIE

You can add an old movie type atmosphere to pictures. Your camcorder automatically sets the wide mode to CINEMA, picture effect to SEPIA, and the appropriate shutter speed.

Использование специальных эффектов – Цифровой эффект

– Только модель CCD-TRV87E

Вы можете добавлять специальные эффекты к записываемому изображению с помощью разных цифровых функций. Записываемый звук будет обычным.

STILL

Вы можете записывать неподвижное изображение, которое можно налагать на подвижное изображение.

FLASH (FLASH MOTION)

Вы можете записывать неподвижные изображения в последовательности через определенные интервалы.

LUMI. (LUMINANCEKEY)

Вы можете изменять яркие места на неподвижном изображении на подвижные изображения.

TRAIL

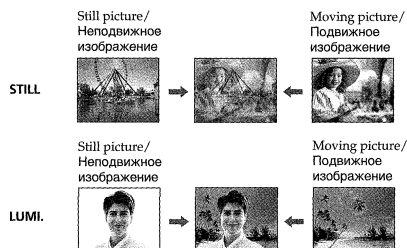
Вы можете записывать изображение с эффектом запаздывания.

SLOW SHTR (SLOW SHUTTER)

Вы можете замедлить скорость затвора. Режим медленного затвора является подходящим для записи темных изображений в более ярком свете.

OLD MOVIE

Вы можете привносить атмосферу старинного кино в изображения. Ваша видеокамера будет автоматически устанавливать широкоэкранный режим в положение CINEMA, эффект изображения в положение SEPIA, и выставлять соответствующую скорость затвора.



Advanced Recording Operations Усовершенствованные операции съемки

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Using special effects – Digital effect

- (1) While your camcorder is in the standby or recording mode, press DIGITAL EFFECT. The digital effect indicator appears.
- (2) Turn the SEL/PUSH EXEC dial to select the desired digital effect mode. The indicator changes as follows:
STILL ↔ FLASH ↔ LUMI. ↔ TRAIL ↔ SLOW SHTR ↔ OLD MOVIE
- (3) Press the SEL/PUSH EXEC dial. The indicator lights up and the bars appear. In the STILL and LUMI. modes, the still picture is stored in memory.
- (4) Turn the SEL/PUSH EXEC dial to adjust the effect as follows:

STILL – The rate of the still picture you want to superimpose on the moving picture

FLASH – The interval of flash motion

LUMI. – The colour scheme of the area in the still picture which is to be swapped with a moving picture

TRAIL – The vanishing time of the incidental image

SLOW SHTR – Shutter speed. The larger the shutter speed number, the slower the shutter speed

OLD MOVIE – No adjustment necessary

The more bars there are on screen, the stronger the digital effect. The bars appear in the following modes: STILL, FLASH, LUMI. and TRAIL.

Использование специальных эффектов – Цифровой эффект

- (1) В то время, когда Ваша видеокамера находится в режиме ожидания или режиме записи, нажмите кнопку DIGITAL EFFECT. Появится индикатор цифрового эффекта.
- (2) Поверните диск SEL/PUSH EXEC для выбора режима нужного цифрового эффекта. Индикатор будет изменяться следующим образом:
STILL ↔ FLASH ↔ LUMI. ↔ TRAIL ↔ SLOW SHTR ↔ OLD MOVIE
- (3) Нажмите диск SEL/PUSH EXEC. Высветится индикатор и появятся полосы. В режимах STILL и LUMI. неподвижное изображение будет сохранено в памяти.
- (4) Поверните диск SEL/PUSH EXEC для регулировки эффекта Следующим образом.

STILL – Интенсивность неподвижного изображения, которое Вы хотите наложить на подвижное изображение

FLASH – Интервал прерывистого движения

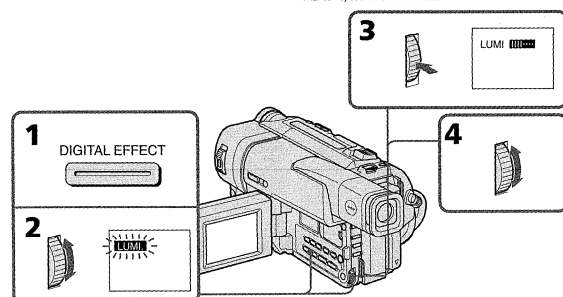
LUMI. – Цветовая гамма участка на неподвижном изображении, который будет заменен на подвижное изображение

TRAIL – Время исчезания побочного изображения

SLOW SHTR – Скорость затвора. Чем больше величина скорости затвора, тем медленнее скорость затвора

OLD MOVIE – Не требуется никаких регулировок

Чем больше прямоугольников на экране, тем сильнее цифровой эффект. Прямоугольники появляются в следующих режимах: STILL, FLASH, LUMI. и TRAIL.



Using special effects – Digital Effect

To cancel the digital effect

Press DIGITAL EFFECT. The digital effect indicator disappears.

Notes

- The following functions do not work during digital effect:
– Fader
– Low lux mode of PROGRAM AE
– Tape Photo recording
– Super NightShot
- The following function does not work in the slow shutter mode:
– Exposure
– PROGRAM AE
- The following functions do not work in the old movie mode:
– Exposure
– Wide mode
– Picture effect
– PROGRAM AE

When you turn the power off

The digital effect will be automatically canceled.

When recording in the slow shutter mode

Auto focus may not be effective. Focus manually using a tripod.

Shutter speed

Shutter speed number	Shutter speed
SLOW SHTR 1	1/25
SLOW SHTR 2	1/12
SLOW SHTR 3	1/6
SLOW SHTR 4	1/3

Использование специальных эффектов – Цифровой эффект

Для отмены цифрового эффекта

Нажмите кнопку DIGITAL EFFECT. Индикатор цифрового эффекта исчезнет.

Примечания

- Следующие функции не работают при использовании цифрового эффекта:
– Фейдер
– Режим низкой освещенности PROGRAM AE
– Ночная суперсъемка
- Следующие функции не работают в режиме медленного затвора:
– Экспозиция
– PROGRAM AE
- Следующие функции не работают в режиме старинного кино:
– Экспозиция
– Широкоэкранный режим
– Эффект изображения
– PROGRAM AE

При выключении питания

Цифровой эффект будет автоматически отменен.

При записи в режиме медленного затвора

Автоматическая фокусировка может быть не эффективной. Выполните фокусировку вручную, используя штатив.

Скорость затвора

Величина скорости затвора	Скорость затвора
SLOW SHTR 1	1/25
SLOW SHTR 2	1/12
SLOW SHTR 3	1/6
SLOW SHTR 4	1/3

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Using the PROGRAM AE function

You can select PROGRAM AE (Auto Exposure) mode to suit your specific shooting requirements.

Spotlight mode

This mode prevents people's faces, for example, from appearing excessively white when shooting subjects lit by strong light in the theatre.

Soft portrait mode

This mode brings out the subject while creating a soft background for subjects such as people or flowers.

Sports lesson mode

This mode minimizes shake on fast-moving subjects such as in tennis or golf.

Beach & ski mode

This mode prevents people's faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

Sunset & moon mode

This mode allows you to maintain atmosphere when you are recording sunsets, general night views, fireworks displays and neon signs.

Landscape mode

This mode is for when you are recording distant subjects such as mountains and prevents your camcorder from focusing on glass or metal mesh in windows when you are recording a subject behind glass or a screen.

Low lux mode (CCD-TRV87E only)

This mode makes subjects brighter in insufficient light.

Использование функции PROGRAM AE

Вы можете выбрать режим PROGRAM AE (автоматическая экспозиция) в соответствии со специфическими требованиями к съемке.

• **Режим прожекторного освещения**
Данный режим предотвращает, к примеру, лица людей от появления в чрезмерно белом свете при выполнении съемки людей, освещенных сильным светом в театре.

Мягкий портретный режим

Этот режим позволяет выделить объект, создавая мягкий фон, и подходит для съемки, например, людей или цветов.

Режим спортивных состязаний

Этот режим позволяет минимизировать дрожание при съемке быстро движущихся предметов, например, при игре в теннис или гольф.

Пляжный и лыжный режим

Этот режим предотвращает появление темных лиц людей в зоне сильного света или отраженного света, например, на пляже в разгар лета или на снежном склоне.

Режим захода солнца и луны

Этот режим позволяет в точности отражать обстановку при съемке заходов солнца, общих ночных видов, фейерверков и неоновых реклам.

Ландшафтный режим

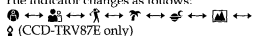
Этот режим позволяет выполнять съемку отдаленных объектов, таких как горы, например, и предотвращает фокусировку видеокамеры на стекло или металлическую решетку на окнах, когда Вы выполняете запись объектов позади стекла или решетки.

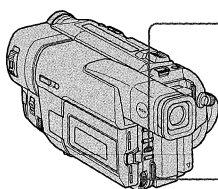
Режим низкой освещенности

(только модель CCD-TRV87E)
Этот режим делает объекты ярче при недостаточном освещении.



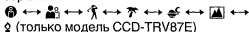
Using the PROGRAM AE function

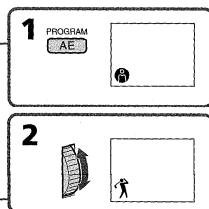
- (1) Press PROGRAM AE in the standby mode. The PROGRAM AE indicator appears.
- (2) Turn the SEL/PUSH EXEC dial to select the desired PROGRAM AE mode. The indicator changes as follows:
 (CCD-TRV87E only)



To turn the PROGRAM AE function off
Press PROGRAM AE.

Использование функции PROGRAM AE

- (1) Нажмите кнопку PROGRAM AE в режиме ожидания. Появится индикатор PROGRAM AE.
- (2) Поверните диск SEL/PUSH EXEC для выбора нужного режима PROGRAM AE. Индикатор будет изменяться следующим образом:
 (только модель CCD-TRV87E)



Для выключения функции PROGRAM AE
Нажмите кнопку PROGRAM AE.

Using the PROGRAM AE function

Notes

- In the spotlight, sports lesson and beach & ski modes, you cannot take close-ups. This is because your camcorder is set to focus only on subjects in the middle to far distance.
- In the sunset & moon and landscape modes, your camcorder is set to focus only on distant subjects.
- The following functions do not work in the PROGRAM AE mode:
 - Slow shutter (CCD-TRV87E only)
 - Old movie (CCD-TRV87E only)
 - NightShot
 - Bounce
- The following functions do not work in the low lux mode (CCD-TRV87E only):
 - Digital effect
 - Overlap
 - Wipe
 - Exposure
- If you press PROGRAM AE when using the NightShot function, the PROGRAM AE indicator flashes and the PROGRAM AE function does not work.

If you are recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp

Flickering or changes in colour may occur in the following modes. If this happens, turn the PROGRAM AE function off:
 – Soft portrait mode
 – Sports lesson mode

Использование функции PROGRAM AE

Примечания

- В режимах прожекторного освещения, спортивных состязаний, а также в пляжном и лыжном режиме Вы не можете выполнять съемку крупным планом. Это объясняется тем, что Ваша видеокамера настроена для фокусировки только на объекты, находящиеся на среднем и дальнем расстояниях.
- В режиме захода солнца и луны, а также в ландшафтном режиме Ваша видеокамера настроена на фокусировку только на дальние объекты.
- Следующие функции не работают в режиме PROGRAM AE:
 - Медленный затвор (только модель CCD-TRV87E)
 - Старинное кино (только модель CCD-TRV87E)
 - Ночная съемка
 - Переосвещивание
- Следующие функции не работают в режиме низкой освещенности (только модель CCD-TRV87E):
 - Цифровой эффект
 - Наложение изображения
 - Вытеснение изображения шторкой
 - Экспозиция
- Если Вы нажмете кнопку PROGRAM AE во время использования функции ночной съемки, начнет мигать индикатор PROGRAM AE, и функция PROGRAM AE не будет работать.

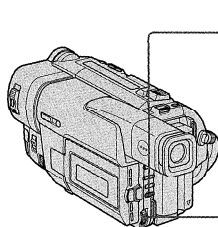
Если Вы выполняете запись при освещении от газоразрядной лампы, как например, люминесцентной натриевой лампы или ртутной лампы
В следующих режимах может возникнуть мерцание или неустойчивые процессы. Если это произойдет, выключите функцию PROGRAM AE.
 – Мягкий портретный режим
 – Режим спортивных состязаний

Adjusting the exposure manually

You can manually adjust and set the exposure. Adjust the exposure manually in the following cases:

- The subject is backlit
- Bright subject and dark background
- To record dark pictures (e.g. night scenes) faithfully

- (1) Press EXPOSURE in the standby or recording mode. The exposure indicator appears.
- (2) Turn the SEL/PUSH EXEC dial to adjust the brightness.



To return to the automatic exposure mode
Press EXPOSURE again.

Nota

When you adjust the exposure manually, the following function and modes do not work:
 – Backlight
 – Slow shutter (CCD-TRV87E only)
 – Old movie (CCD-TRV87E only)

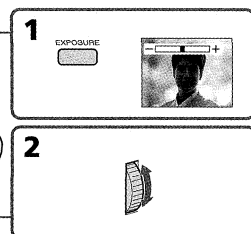
Your camcorder automatically returns to the automatic exposure mode:
 – if you change the PROGRAM AE mode
 – if you slide NIGHTSHOT to ON

Регулировка экспозиции вручную

Вы можете отрегулировать и установить экспозицию вручную. Отрегулируйте экспозицию вручную в следующих случаях:

- Объект на фоне задней подсветки
- Яркий объект на темном фоне
- Для записи темных изображений (например, ночных сцен) с большой достоверностью

- (1) Нажмите кнопку EXPOSURE в режиме ожидания или записи. Появится индикатор экспозиции.
- (2) Поверните диск SEL/PUSH EXEC для регулировки яркости.



Для возврата в режим автоматической экспозиции
Нажмите кнопку EXPOSURE еще раз.

Примечания

При выполнении регулировки вручную следующие функции и режимы не работают:
 – Задняя подсветка
 – Медленный затвор (только модель CCD-TRV87E)
 – Старинное кино (только модель CCD-TRV87E)

Ваша видеокамера автоматически возвращается к режиму автоматической экспозиции:
 – если Вы изменяете режим PROGRAM AE
 – если Вы переместите NIGHTSHOT в положение ON

Focusing manually

You can gain better results by manually adjusting the focus in the following cases:

- The autofocus mode is not effective when shooting
 - subjects through glass coated with water droplets
 - horizontal stripes
 - subjects with little contrast with backgrounds such as walls and sky
- When you want to change the focus from a subject in the foreground to a subject in the background
- Shooting a stationary subject when using a tripod



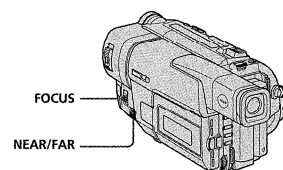
- (1) Set FOCUS to MANUAL in the standby or recording mode. The F indicator appears.
- (2) Turn NEAR/FAR to sharpen focus.

Фокусировка вручную

Вы можете получить лучшие результаты путем регулировки вручную в следующих случаях:

- Режим автоматической фокусировки является неэффективным при выполнении съемки
 - объектов через стекло, покрытое каплями воды
 - горизонтальных полос
 - объектов с малой контрастностью на таком фоне, как стена или небо
- Если Вы хотите выгнать изменение фокусировки объекта на переднем плане на объект на заднем плане
- При выполнении съемки стационарных объектов с использованием штатива

- (1) Установите переключатель FOCUS в положение MANUAL в режиме ожидания или режиме записи. Появится индикатор F.
- (2) Поверните регулятор NEAR/FAR для получения четкой фокусировки.



To return to the autofocus mode
Set FOCUS to AUTO.

Для возвращения в режим автоматической фокусировки
Установите переключатель FOCUS в положение AUTO.

Focusing manually

To record distant subjects

When you press FOCUS down to INFINITY, the lens focuses on infinity and Δ indicator appears. When you release FOCUS, your camcorder returns to the manual focus mode. Use this mode when your camcorder focuses on near objects even though you are trying to shoot a distant object.

To focus precisely

Adjust the zoom by first focusing at the "T" (telephoto) position and then shooting at the "W" (wide-angle) position. This makes focusing easier.

When you shoot close to the subject

Focus at the end of the "W" (wide-angle) position.

changes to the following indicators:

- Δ when recording a distant subject.
- Δ when the subject is too close to focus on.

Фокусировка вручную

Для съемки удаленных объектов

Если Вы нажмете вниз кнопку FOCUS в положение INFINITY, объектив выполнит фокусировку на бесконечность и появится индикатор Δ . Если Вы отпустите кнопку FOCUS, Ваша видеокамера вернется в режим ручной фокусировки. Используйте этот режим, если Ваша видеокамера выполняет фокусировку на ближние объекты, даже если Вы пытаетесь выполнить съемку удаленного объекта.

Для точной фокусировки

Отрегулируйте сперва вариообъектив для фокусировки в положение "Т" (телефото), а затем выполните съемку в положении "W" (широкого угла). Это облегчит фокусировку.

Если Вы выполняете съемку вблизи объекта

Выполните фокусировку в конце положения "W" (широкого угла). Это облегчит фокусировку.

изменяется на следующие индикаторы:

- Δ при записи удаленного объекта.
- Δ если объект находится слишком близко, чтобы выполнить фокусировку на него.

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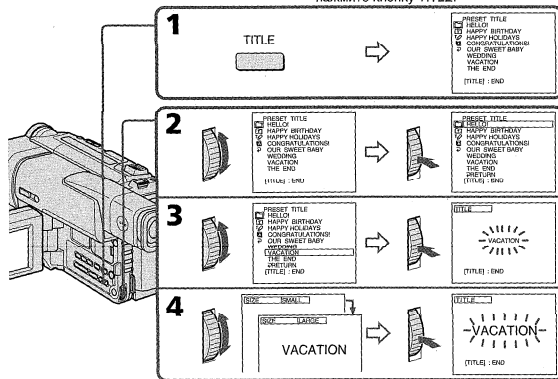
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Superimposing a title

You can select one of eight preset titles and two custom titles (p. 62). You can also select the language, colour, size and position of titles.



- Press TITLE in the standby mode.
 - Turn the SEL/PUSH EXEC dial to select $\square$, then press the dial.
 - Turn the SEL/PUSH EXEC dial to select the desired title, then press the dial. The titles are displayed in the language you selected.
 - Change the colour, size, or position, if necessary.
 - Turn the SEL/PUSH EXEC dial to select the colour, size, or position, then press the dial. The item appears.
 - Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial.
 - Repeat steps ① and ② until the title is laid out as desired.
 - Press the SEL/PUSH EXEC dial again to complete the setting.
 - Press START/STOP to start recording.
 - When you want to stop recording the title, press TITLE.
- Нажмите кнопку TITLE в режиме ожидания.
 - Поверните диск SEL/PUSH EXEC для выбора индикации $\square$, а затем нажмите диск.
 - Поверните диск SEL/PUSH EXEC для выбора нужного титра, а затем нажмите диск. Титры будут отображаться на выбранном Вами языке.
 - Измените цвет, размер или положение титра, если нужно.
 - Поверните диск SEL/PUSH EXEC для выбора цвета, размера или положения титра, а затем нажмите диск. Появится нужный пункт.
 - Поверните диск SEL/PUSH EXEC для выбора нужного пункта, а затем нажмите диск.
 - Повторите пункты ① и ② до тех пор, пока титр не будет выглядеть, как нужно.
 - Нажмите диск SEL/PUSH EXEC еще раз для завершения установки.
 - Нажмите кнопку START/STOP для начала записи.
 - Если Вы хотите остановить запись титра, нажмите кнопку TITLE.



Superimposing a title

To superimpose the title while you are recording

Press TITLE while you are recording, and carry out steps 2 to 5. When you press the SEL/PUSH EXEC dial at step 5, the title is superimposed.

To select the language of a preset title

If you want to change the language, select $\square$ before step 2. Then select the desired language and return to step 2.

Note

Both the date and time or either of them may not be displayed depending on the size or position of the title.

If you display the menu or title menu while superimposing a title

The title is not recorded while the menu or title menu is displayed.

To use the custom title

If you want to use the custom title, select $\square$ in step 2.

If you have not made any custom title, "----" appears on the display.

Title setting

- The title colour changes as follows : WHITE $\leftrightarrow$ YELLOW $\leftrightarrow$ VIOLET $\leftrightarrow$ RED $\leftrightarrow$ CYAN $\leftrightarrow$ GREEN $\leftrightarrow$ BLUE
- The title size changes as follows : SMALL $\leftrightarrow$ LARGE
- You cannot input more than 13 characters in LARGE size.
- The title position changes as follows : 1 $\leftrightarrow$ 2 $\leftrightarrow$ 3 $\leftrightarrow$ 4 $\leftrightarrow$ 5 $\leftrightarrow$ 6 $\leftrightarrow$ 7 $\leftrightarrow$ 8 $\leftrightarrow$ 9
- The larger the position number, the lower the title is positioned.
- When you select the title size "LARGE", you cannot choose position 9.
- When you select the title size "LARGE" in the CINEMA mode, you cannot choose position 8 nor 9.

When you are selecting and setting the title You cannot superimpose the title displayed on the screen.

When you superimpose a title while you are recording The beep does not sound.

Наложение титра

Для наложения титра во время записи

Нажмите кнопку TITLE во время записи и выполните действия пунктов со 2 по 5. Если Вы нажмете диск SEL/PUSH EXEC в пункте 5, титр будет наложен на изображение.

Для выбора языка предварительно установленного титра

Если Вы хотите изменить язык, выберите индикацию $\square$ перед выполнением действия пункта 2. Затем выберите нужный язык и вернитесь к пункту 2.

Примечание

Индикация даты и времени или же одна из них не могут отображаться на дисплее в зависимости от размера или положения титра.

Если на дисплее отображается меню или меню титров во время наложения титра Титр не записывается во время отображения на дисплее меню или меню титров.

Для использования созданного Вами титра

Если Вы хотите использовать созданный Вами титр, выберите индикацию $\square$ в пункте 2. Если Вы не создали своего собственного титра, на дисплее появится индикация "----".

Установка титра

- Цвет титра изменяется следующим образом: WHITE (БЕЛЫЙ) $\leftrightarrow$ YELLOW (ЖЕЛТЫЙ) $\leftrightarrow$ VIOLET (ФИОЛЕТОВЫЙ) $\leftrightarrow$ RED (КРАСНЫЙ) $\leftrightarrow$ CYAN (ГОЛУБОЙ) $\leftrightarrow$ GREEN (ЗЕЛЕННЫЙ) $\leftrightarrow$ BLUE (СИНИЙ)
- Размер титра изменяется следующим образом: SMALL (МАЛЕНЬКИЙ) $\leftrightarrow$ LARGE (БОЛЬШОЙ)
- Вы не можете ввести более 13 символов при размере LARGE.
- Положение титра изменяется следующим образом: 1 $\leftrightarrow$ 2 $\leftrightarrow$ 3 $\leftrightarrow$ 4 $\leftrightarrow$ 5 $\leftrightarrow$ 6 $\leftrightarrow$ 7 $\leftrightarrow$ 8 $\leftrightarrow$ 9

Чем больше номер положения титра, тем ниже будет расположен титр.

Если Вы выберете размер "LARGE", Вы не сможете выбрать положение 9. Когда Вы выбираете размер титра "LARGE" в режиме CINEMA, Вы не сможете выбрать положение 8 или 9.

Во время выбора и установки титра

Вы не можете налагать на изображение титр, отображаемый на экране.

При наложении титра во время записи Зумерного сигнала не будет.

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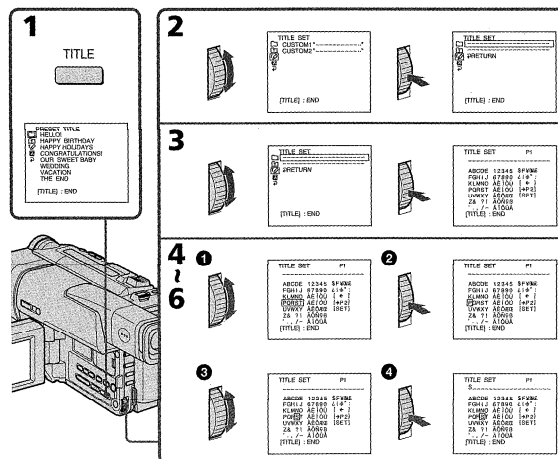
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Making your own titles

You can make up to two titles and store them in your camcorder. Each title can have up to 20 characters.

- Press TITLE in the standby or PLAYER mode.
- Turn the SEL/PUSH EXEC dial to select $\square$, then press the dial.
- Turn the SEL/PUSH EXEC dial to select the first line (CUSTOM1) or second line (CUSTOM2), then press the dial.
- Turn the SEL/PUSH EXEC dial to select the column of the desired character, then press the dial.
- Turn the SEL/PUSH EXEC dial to select the desired character, then press the dial.
- Repeat steps 4 and 5 until you have selected all characters and completed the title.
- To finish making your own titles, turn the SEL/PUSH EXEC dial to select [SET], then press the dial. The title is stored in memory.
- Press TITLE to make the title menu disappear.



Создание своих собственных титров

Вы можете создать два собственных титра и хранить их в памяти видеокамеры. Каждый титр может состоять из 20 символов.

- Нажмите кнопку TITLE в режиме ожидания или режиме PLAYER.
- Поверните диск SEL/PUSH EXEC для выбора индикации $\square$, а затем нажмите диск.
- Поверните диск SEL/PUSH EXEC для выбора первой строки (CUSTOM1) или второй строки (CUSTOM2), а затем нажмите диск.
- Поверните диск SEL/PUSH EXEC для выбора колонки с нужным символом, а затем нажмите диск.
- Поверните диск SEL/PUSH EXEC нужного символа, а затем нажмите диск.
- Повторите действия пунктов 4 и 5 до тех пор, пока не выберете все символы и не составите полностью титр.
- Для завершения создания своих собственных титров поверните диск SEL/PUSH EXEC для выбора команды [SET], а затем нажмите диск. Титр будет занесен в память.
- Нажмите кнопку TITLE, чтобы меню титров исчезло.

Making your own titles

To change a title you have stored

In step 3, select CUSTOM1 or CUSTOM2, depending on which title you want to change, then press the SEL/PUSH EXEC dial. Turn the SEL/PUSH EXEC dial to select [↵], then press the dial to delete the title. The last character is erased. Enter the new title as desired.

If you take 5 minutes or longer to enter characters in the standby mode while a cassette is in your camcorder

The power automatically goes off. The characters you have entered remain stored in memory. Turn STANDBY down once and then up again, then proceed from step 1.

We recommend setting the POWER switch to PLAYER or removing the cassette so that your camcorder does not automatically turn off while you are entering title characters.

If you select [↵P2]

The menu for selecting alphabet and Russian characters appear. Select [↵P1] to return to the previous screen.

To delete the title

Select [↵]. The last character is erased.

Создание своих собственных титров

Для изменения сохраненного в памяти титра

В пункте 3, выберите команду CUSTOM1 или CUSTOM2 в зависимости от того, какой титр Вы хотите изменить, а затем нажмите диск SEL/PUSH EXEC. Поверните диск SEL/PUSH EXEC для выбора индикации [↵], а затем нажмите диск для удаления титра. Последний символ будет удален. Введите новый нужный символ.

Если при вводе символов пройдет 5 минут или более в режиме ожидания при вставленной кассете в Вашу видеокамеру

Питание автоматически выключится. Введенные символы будут сохранены в памяти. Поверните вниз, а затем снова вверх регулятор STANDBY, а затем выполните действия, начиная с пункта 1. Рекомендуется установить переключатель POWER в положение PLAYER или вынуть кассету, так чтобы Ваша видеокамера автоматически не выключалась при вводе символов титров.

Если Вы выбрали команду [↵P2]

Появится меню для выбора алфавита и русских букв. Выберите команду [↵P1], чтобы вернуться к предыдущему экрану.

Для удаления титра

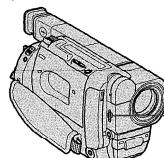
Выберите команду [↵]. Последний символ будет удален.

Using the built-in light

– CCD-TRV57E/TRV67E/TRV87E only

You can use the built-in light to suit your shooting situation. The recommended distance between the subject and camcorder is about 1.5 m (5 feet).

Slide LIGHT to ON while your camcorder is in the standby mode. The built-in light turns on. The built-in light turns on/off by turning STANDBY to STANDBY/LOCK.



To turn off the built-in light

Slide LIGHT to OFF.

To turn on the built-in light automatically

Slide LIGHT to AUTO.

The built-in light automatically turns on and off according to the ambient brightness. However, the built-in light automatically turns off if the built-in light turns on for more than about 5 minutes. In this case, turn STANDBY down once and up again.

CAUTION

Be careful not to touch the lighting section, because the plastic window and surrounding surfaces are hot while the light is on. It remains hot for a while after the light is turned off.

DANGER

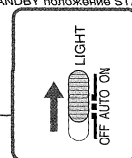
Not to be handled by children. Emits intense heat and light. Use with caution to reduce the risk of fire or injury to persons. Do not direct light at persons or materials from less than 1.22 m (4 feet) during use and until cool. Slide LIGHT to OFF when not in use.

Использование встроенной подсветки

– Только модель CCD-TRV57E/TRV67E/TRV87E

Вы можете использовать встроенную подсветку в соответствии с условиями съемки. Рекомендуемое расстояние между объектом и видеокамерой равно около 1,5 м.

Передвиньте переключатель LIGHT в положение ON в то время, когда видеокамера находится в режиме ожидания. Встроенная подсветка включится. Встроенная подсветка включается/выключается путем поворота регулятора STANDBY в положение STANDBY/LOCK.



Для выключения встроенной подсветки

Передвиньте переключатель LIGHT в положение OFF.

Для автоматического включения встроенной подсветки

Передвиньте переключатель LIGHT в положение AUTO. Встроенная подсветка будет автоматически включаться и выключаться в соответствии с окружающими условиями освещения. Однако, встроенная подсветка автоматически выключится, если она будет находиться во включенном состоянии около пяти минут. В этом случае, поверните регулятор STANDBY вниз и снова вверх.

ВНИМАНИЕ

Будьте осторожны, чтобы не прикасаться к секции подсветки, поскольку пластмассовое окно и прилегающая поверхность являются горячими при включенной подсветке. Эта секция будет оставаться горячей и некоторое время после выключения подсветки.

ОСТОРОЖНО

Детям пользоваться подсветкой запрещено. Он излучает сильное тепло и свет. Соблюдайте осторожность, чтобы не допустить случайного воспламенения предметов и не травмировать людей вокруг. Не направляйте подсветку на людей или материалы с расстояния менее 1,22 м во время пользования аппаратом до тех пор, пока он не остынет. Передвиньте переключатель LIGHT в положение OFF, если не будете пользоваться подсветкой.

Using the built-in light

Notes

- The battery pack is quickly discharging while the built-in light is turned on. Slide LIGHT to OFF when not in use.
- When you do not use your camcorder, slide LIGHT to OFF and remove the battery pack to avoid turning on the built-in light.
- When flickering occurs while shooting in the auto mode, slide LIGHT to ON.
- The built-in light may turn on/off when you use the PROGRAM AE or backlight function while shooting in the auto mode.
- The built-in light may be turned off when inserting or ejecting a cassette.
- While the end search function is working, the built-in light is turned off.

Replacing the bulb

Use the Sony XB-3D halogen lamp (not supplied). The supplied halogen lamp is not on the market. Purchase the Sony XB-3D halogen lamp.

Remove the power source before replacing the bulb.

- Remove the built-in light unit while pushing the hole under the built-in light unit using a wire.
- Turn the bulb housing counterclockwise and detach from the built-in light unit.
- Replace the bulb using a dry cloth.
- Attach the bulb housing turning it clockwise, then replace the built-in light unit.

Использование встроенной подсветки

Примечания

- Батареиный блок быстро разряжается при включенной подсветке. Передвиньте переключатель LIGHT в положение OFF, если подсветка не используется.
- Если Вы не используете Вашу видеокамеру, передвиньте переключатель LIGHT в положение OFF и выньте батарейный блок во избежание включения встроенной подсветки.
- В случае мерцания во время съемки в автоматическом режиме передвиньте переключатель LIGHT в положение ON.
- Встроенная подсветка может включаться/выключаться при использовании функции PROGRAM AE или функции задней подсветки во время съемки в автоматическом режиме.
- Встроенная подсветка может выключаться при установке или извлечении кассеты.
- При использовании функции поиска конца записи на ленте встроенная подсветка выключается.

Замена лампы накаливания

Используйте галогенную лампу Sony XB-3D (не прилагается). Прилагаемая галогенная лампа не поступает в розничную продажу. Приобретите галогенную лампу Sony XB-3D.

Перед заменой лампы накаливания выньте источник питания.

- Выньте встроенное устройство подсветки, нажав на отверстие под встроенным устройством с помощью проволоки.
- Поверните корпус лампы накаливания против часовой стрелки и отсоедините лампу от встроенного устройства подсветки.
- Установите на место лампу накаливания с помощью сухой ткани.
- Прикрепите корпус лампы накаливания, повернув его по часовой стрелке, и установите на место встроенное устройство подсветки.

Using the built-in light

CAUTION

- When replacing the bulb, use only the Sony XB-3D halogen lamp (not supplied) to reduce the risk of fire.
- To prevent possible burn hazard, disconnect the power source before replacing and do not touch the bulb until the bulb becomes cool enough to handle (for about 30 minutes or more).

Note

To prevent the bulb from being smudged with finger prints, handle it with a dry cloth, etc. If the bulb is smudged, wipe it completely.

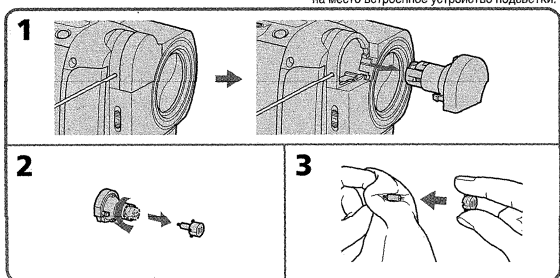
Использование встроенной подсветки

ВНИМАНИЕ

- При замене лампы накаливания используйте только галогенную лампу Sony XB-3D (не прилагается) для уменьшения вероятности воспламенения.
- Для предотвращения опасности получения ожога, отсоедините источник питания перед тем, как заменить лампу накаливания, и не прикасайтесь к лампе до тех пор, пока она достаточно не остынет (около 30 минут или более).

Примечание

Для предотвращения загрязнения лампы накаливания от отпечатков пальцев обращайтесь с ней осторожно, используя сухую ткань. В случае загрязнения лампы накаливания тщательно протрите ее.



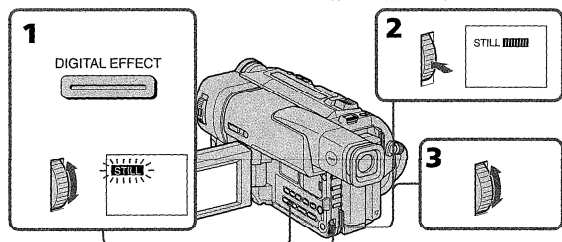
— Advanced Playback Operations —

Playing back a tape with digital effects

— CCD-TRV87E only

During playback, you can process a scene using the digital effect functions: STILL, FLASH, LUMI. and TRAIL.

- (1) During playback, press DIGITAL EFFECT and turn the SEL/PUSH EXEC dial until the desired digital effect indicator (STILL, FLASH, LUMI. or TRAIL) flashes.
- (2) Press the SEL/PUSH EXEC dial. The digital effect indicator lights up and the bars appear. In the STILL or LUMI. mode, the picture where you press the SEL/PUSH EXEC dial is stored in memory as a still picture.
- (3) Turn the SEL/PUSH EXEC dial to adjust the effect. For details of each digital effect function, see page 51.



To cancel the digital effect function
Press DIGITAL EFFECT.

Notes

- You cannot process externally input scenes using the digital effect function.
- To record pictures that you have processed using the digital effect function, record the pictures on the VCR.

STILL and LUMI. modes

- You can search a picture to image-process by pressing ►► or ◀◀ in the playback mode. However, noise appears on the picture.
- You cannot delete a picture stored in memory even if you stop playing back a tape.

When you set the POWER switch to OFF (CHARGE)

The digital effect function is automatically canceled.

— Усовершенствованные операции воспроизведения —

Воспроизведение ленты с цифровыми эффектами

— Только модель CCD-TRV87E

Во время воспроизведения, Вы можете видоизменять изображение с помощью функций: STILL, FLASH, LUMI. и TRAIL.

- (1) Во время воспроизведения, нажимайте кнопку DIGITAL EFFECT и поворачивайте диск SEL/PUSH EXEC до тех пор, пока не начнет мигать индикатор нужного цифрового эффекта (STILL, FLASH, LUMI. или TRAIL).
- (2) Нажмите диск SEL/PUSH EXEC. Высветится индикатор цифрового эффекта и появятся полосы. В режиме STILL или LUMI. изображение, на котором Вы нажмете кнопку диск SEL/PUSH EXEC, будет занесено в память как неподвижное изображение.
- (3) Поверните диск SEL/PUSH EXEC для регулировки эффекта изображения. Подробные сведения по каждой функции цифровых эффектов приведены на стр. 51.

Для отмены функции цифровых эффектов
Нажмите кнопку DIGITAL EFFECT.

Примечания

- Вы не можете обрабатывать внутренние введенные сцены с использованием функции цифровых эффектов.
- Для записи изображений, которые обработаны с использованием функции цифровых эффектов, записывайте изображения на KBM.

Режимы STILL и LUMI.

- Вы можете выполнять поиск видоизмененного изображения, нажимая кнопку ►► или ◀◀ в режиме воспроизведения. Однако, на изображении появятся помехи.
- Вы не можете удалить изображения, сохраненное в памяти, даже если Вы остановите воспроизведение ленты.

Если Вы установите переключатель POWER в положение OFF (CHARGE)

Функция цифровых эффектов будет автоматически отменена.

Advanced Playback Operations Усовершенствованные операции воспроизведения

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— Editing —

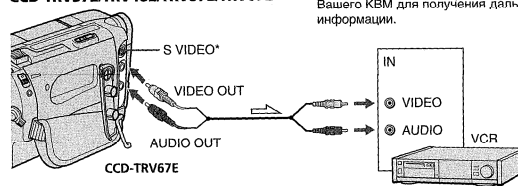
Dubbing a tape

Using the A/V connecting cable or S video connecting cable (not supplied)

Connect your camcorder to the VCR using the A/V connecting cable supplied with your camcorder.

- (1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
- (2) Set the input selector on the VCR to LINE. Refer to the operating instructions of your VCR for more information.
- (3) Set the POWER switch to PLAYER.
- (4) Play back the recorded tape on your camcorder.
- (5) Start recording on the VCR. Refer to the operating instructions of your VCR for more information.

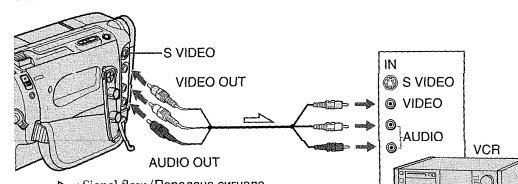
CCD-TRV37E/TRV48E/TRV57E/TRV67E



→ : Signal flow/Передача сигнала

* CCD-TRV67E only/только модель CCD-TRV67E

CCD-TRV87E



→ : Signal flow/Передача сигнала

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Dubbing a tape

When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

To prevent deterioration of pictures from dubbing

Set EDIT to ON in the menu settings before dubbing.

If you have displayed the screen indicators on the TV

Make the indicators disappear by pressing DISPLAY so that they will not be superimposed on the edited tape.

You can edit on VCRs that support the following systems

8 mm, Hi8, Hi8, i Digital8, VHS, S-VHS, S-VHS, VHS, S-VHS, S-VHS, S-VHS, Betamax, i mini DV or i DV

If your VCR is a monaural type (CCD-TRV87E only)

Connect the yellow plug for video and the white plug for audio on both your camcorder and the VCR. You do not connect the red plug. With this connection, the sound will be monaural.

Connect using an S video cable (not supplied) to obtain high-quality pictures (CCD-TRV67E/TRV87E only)

With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.

Connect an S video cable (not supplied) to the S video jacks of both your camcorder and the VCR.

Перезапись ленты

Если Вы закончили перезапись ленты. Нажмите кнопку ■ как на видеокамере, так и на KBM.

Для предотвращения ухудшения изображения при перезаписи

Перед выполнением перезаписи установите переключатель EDIT на ON в установках меню.

При отображении экраных индикаторов на экране телевизора

Добейтесь того, чтобы индикаторы исчезли, нажав кнопку DISPLAY, так чтобы они не были наложены на монтажную ленту.

Вы можете выполнять монтаж на KBM, которые совместимы со следующими системами

8 mm, Hi8, Hi8, i Digital8, VHS, S-VHS, S-VHS, VHS, S-VHS, S-VHS, Betamax, i mini DV или i DV

Если Ваш KBM монофонического типа (только модель CCD-TRV87E)

Подсоедините желтый штекер для видеосигнала, а белый штекер для аудиосигнала к видеокамере и к KBM. Вам не нужно подсоединять красный штекер. При таком подсоединении звук будет монофоническим.

Выполните подсоединение с помощью кабеля S видео (не прилагается) для получения высококачественных изображений (только модель CCD-TRV67E/TRV87E)

При таком подсоединении Вам не нужно подсоединять желтый (видео) штекер соединительного кабеля аудио/видео. Подсоедините кабель S видео (не прилагается) к гнездам S видео на Вашей видеокамере и KBM.

Editing Монтаж

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— Монтаж —

Перезапись ленты

Использование соединительного кабеля аудио/видео или соединительного кабеля S-видео (не прилагается)

Подсоедините Вашу видеокамеру к KBM с помощью соединительного кабеля аудио/видео, который прилагается к Вашей видеокамере.

- (1) Вставьте незаписанную ленту (или ленту, на которую Вы хотите выполнить запись) в KBM и вставьте записанную ленту в Вашу видеокамеру.
- (2) Установите селектор на KBM в положение LINE. Смотрите инструкцию по эксплуатации Вашего KBM для получения дальнейшей информации.
- (3) Установите переключатель POWER в положение PLAYER.
- (4) Начните воспроизведение записанной ленты на Вашей видеокамере.
- (5) Начните запись на Вашем KBM. Смотрите инструкцию по эксплуатации Вашего KBM для получения дальнейшей информации.

— Customizing Your Camcorder —

Changing the menu settings

To change the mode settings in the menu settings, select the menu items with the SEL/PUSH EXEC dial. The default settings can be partially changed. First, select the icon, then the menu item and then the mode.

- (1) In the standby or PLAYER mode, press MENU.
- (2) Turn the SEL/PUSH EXEC dial to select the desired icon, then press the dial to set.
- (3) Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial to set.
- (4) Turn the SEL/PUSH EXEC dial to select the desired mode, and press the dial to set.
- (5) If you want to change other items, select RETURN and press the dial, then repeat steps from 2 to 4. For details, see "Selecting the mode setting of each item" (p. 72).

— Выполнение индивидуальных установок на видеокамере —

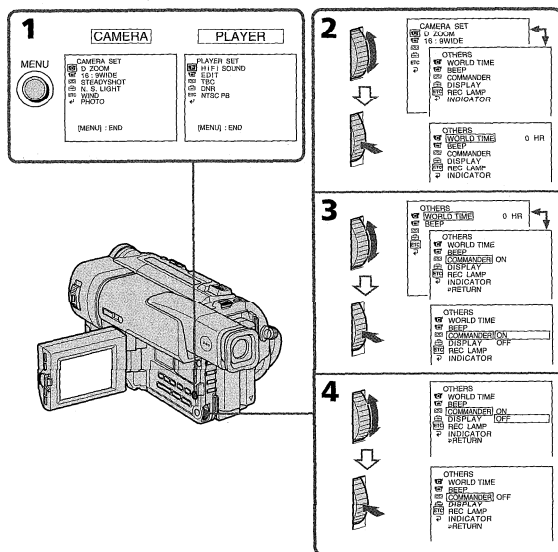
Изменение установок меню

Для изменения установок режима в установках меню выберите пункты меню с помощью диска SEL/PUSH EXEC. Установки по умолчанию имеют быть частично изменены. Сначала выберите пиктограмму, затем пункт меню, а затем режим.

- (1) В режиме ожидания или режиме PLAYER нажмите кнопку MENU.
- (2) Поверните диск SEL/PUSH EXEC для выбора нужной пиктограммы, а затем нажмите диск для установки.
- (3) Поверните диск SEL/PUSH EXEC для выбора нужной пиктограммы, а затем нажмите диск для установки.
- (4) Поверните диск SEL/PUSH EXEC для выбора нужной пиктограммы, а затем нажмите диск для установки.
- (5) Если Вы хотите изменить другие пункты, выберите команду RETURN, а затем нажмите диск, после чего повторите действия пунктов со 2 по 4. Подробные сведения приведены в разделе "Выбор установок режима по каждому пункту" (стр. 77).

Changing the menu settings

Изменение установок меню



To make the menu display disappear
Press MENU.

Для того, чтобы исчезла индикация меню
Нажмите кнопку MENU.

Changing the menu settings

Изменение установок меню

Menu items are displayed as the following icons:

- CAMERA SET
- PLAYER SET
- LCD SET
- TAPE SET
- SETUP MENU
- OTHERS

Depending on your camcorder model
The menu display may be different from that in this illustration.

Пункты меню отображаются в виде следующих пиктограмм:

- CAMERA SET
- PLAYER SET
- LCD SET
- TAPE SET
- SETUP MENU
- OTHERS

В зависимости от модели Вашей видеокамеры
Дисплей меню может отличаться от того, что приведен на рисунке.

English

Selecting the mode setting of each item

Menu items differ according to whether the POWER switch is set to PLAYER or CAMERA. The LCD screen shows only the items you operate at the moment.

Icon/item	Mode	Meaning	POWER switch
D ZOOM	● OFF ON*	If you set to OFF, digital zoom is deactivated and up to 20x is carried out. If you set to ON, digital zoom is activated and more than 20x to 40x is performed digitally. (p. 25) (CCD-TRV37E only)	CAMERA
	● OFF 40x 80x	If you set to OFF, digital zoom is deactivated and up to 20x is carried out. If you set to 40x/80x, digital zoom is activated and more than 20x to 40x/80x is performed digitally. (p. 25) (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)	
16:9WIDE	● OFF CINEMA 16:9FULL	— To record in the CINEMA mode (p. 44) To record in the 16:9FULL mode	CAMERA
STEADYSHOT (CCD-TRV57E/TRV67E/TRV87E only)	● ON OFF	To compensate for camera-shake To cancel the SteadyShot function. Natural pictures are produced when shooting a stationary object with a tripod.	CAMERA
N.S.LIGHT	● ON OFF	To use the NightShot Light function (p. 29) To cancel the NightShot Light function	CAMERA
WIND (CCD-TRV87E only)	● OFF ON	— To reduce wind noise when recording in strong wind	CAMERA
PHOTO (CCD-TRV87E only)	● NORMAL FADE SHUTTER	To activate the normal photo function To activate the fade photo function To activate the shutter photo function	CAMERA

* 40x/240x in some areas
** 360x in some areas

Notes on the SteadyShot function (CCD-TRV57E/TRV67E/TRV87E only)

- The SteadyShot function will not correct excessive camera-shake.
- Attachment of a conversion lens (not supplied) may influence the SteadyShot function.
- SteadyShot does not operate in the 16:9FULL mode. If you set STEADYSHOT to ON in the menu settings, the indicator flashes.

If you cancel the SteadyShot function (CCD-TRV57E/TRV67E/TRV87E only)

The SteadyShot off indicator appears. Your camcorder prevents excessive compensation for camera-shake.

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Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
HIFI SOUND (CCD-TRV87E only)	● STEREO 1 2	To play back a stereo tape or dual sound track tape To play back a monaural tape or dual sound track tape with main sound To play back a dual sound track tape with sub sound	PLAYER
EDIT	● OFF ON	— To minimize picture deterioration when editing	PLAYER
TBC	● ON OFF	To correct jitter To not correct jitter. Set TBC to OFF when playing back a tape on which you have dubbed over and recorded the signal of a TV game or similar machine.	PLAYER
TBC stands for "Time Base Corrector".			
DNR	● ON OFF	To reduce picture noise To reduce a conspicuous afterimage when the picture has a lot of movement	PLAYER
DNR stands for "Digital Noise Reduction".			
NTSC PB	● ON PAL TV NTSC 4.43	To play back a tape recorded in the NTSC colour system on a PAL system TV To play back a tape recorded in the NTSC colour system on a TV with the NTSC 4.43 mode	PLAYER
LCD B. L.	● BRT NORMAL BRIGHT	To set the brightness on the LCD screen normal To brighten the LCD screen	PLAYER CAMERA
LCD COLOUR		To adjust the colour on the LCD screen	PLAYER CAMERA

Note on the playback of the NTSC tapes

You can play back tapes recorded in the NTSC video system. When you play back a tape on a Multi System TV, select the best mode while viewing the picture on the TV.

In more than 5 minutes after removing the power source

The "WIND" (CCD-TRV87E only) "COMMANDER" (CCD-TRV48E/TRV57E/TRV67E/TRV87E only) "EDIT" and "HIFI SOUND" (CCD-TRV87E only) items are returned to their default settings. The other menu items are held in memory even when the battery is removed, as long as the lithium battery is installed.

Note on LCD B.L.

When you use power sources other than the battery pack, "BRIGHT" is automatically selected.

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
REC MODE	● SP LP	To record in SP (Standard Play) mode To increase the recording time to twice the SP mode	CAMERA
ORC TO SET		To automatically adjust the recording condition to get the best possible recording. Press START/STOP to start adjustment. Your camcorder takes about 10 seconds to check the tape condition and then returns to the standby mode.	CAMERA
ORC stands for "Optimizing the Recording Condition".			
REMAIN	● AUTO ON	To display the remaining tape bar: • for about 8 seconds after your camcorder is turned on and calculates the remaining amount of tape • for about 8 seconds after a cassette is inserted and your camcorder calculates the remaining amount of tape • for about 8 seconds after ► is pressed in PLAYER mode • for about 8 seconds after DISPLAY is pressed to display the screen indicators • for the period of tape rewinding, forwarding or picture search in the PLAYER mode To always display the remaining tape bar	PLAYER CAMERA

Notes on the LP mode

- When you record a tape in the LP mode on your camcorder, we recommend playing the tape on your camcorder. When you play back the tape on other camcorders or VCRs, noise may occur in pictures or sound.
- Noise may occur also when you play on your camcorder tapes recorded in the LP mode on other camcorders or VCRs.

Notes on ORC setting

- Each time you eject the cassette, the ORC setting will be canceled. If necessary, reset the setting.
- You cannot use this setting on a tape with the red mark on the cassette exposed. (i. e. the tape is write-protected)
- When you set ORC TO SET, a non-recorded section of about 0.1 seconds appears on the tape. However, note that this non-recorded section disappears from the tape when you continue recording from this section.
- To check if you have already set the ORC setting, select ORC TO SET in the menu settings. "ORC ON" is displayed if ORC TO SET is already set.

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Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
CLOCK SET		To reset the date or time (p. 82)	CAMERA
AUTO DATE	● ON	To record the date for 10 seconds after recording has started	CAMERA
	OFF	To cancel the auto date function	
LTR SIZE	● NORMAL	To display selected menu items in normal size	PLAYER CAMERA
	2x	To display selected menu items at twice the normal size	
DEMO MODE	● ON	To make the demonstration appear	CAMERA
	OFF	To cancel the demonstration mode	

Notes on DEMO MODE

- You cannot select DEMO MODE when a cassette is inserted in your camcorder.
- DEMO MODE is set to STBY (Standby) at the factory and the demonstration starts about 10 minutes after you have set the POWER switch to CAMERA without a cassette inserted. To cancel the demonstration, insert a cassette, set the POWER switch to other than CAMERA, or set DEMO MODE to OFF.
- When NIGHTSHOT is set to ON, the NIGHTSHOT indicator appears in the viewfinder or on the LCD screen and you cannot select DEMO MODE in the menu settings.

Customizing Your Camcorder Выполнение индивидуальных установок на видеокамере

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Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
WORLD TIME		To set the clock to the local time. Turn the SEL/PUSH EXEC dial to set a time difference. The clock changes by the time difference you set here. If you set the time difference to 0, the clock returns to the originally set time.	CAMERA
BEEP	● MELODY	To output the melody when you start/stop recording or when an unusual condition occurs on your camcorder	PLAYER CAMERA
	NORMAL	To output the beep sound instead of the melody	
	OFF	To cancel the melody and beep sound	
COMMANDER (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)	● ON	To activate the Remote Commander supplied with your camcorder	PLAYER CAMERA
	OFF	To deactivate the Remote Commander to avoid remote control misoperation caused by other VCR's remote control	
DISPLAY	● LCD	To show the display on the LCD screen and viewfinder	PLAYER CAMERA
	V-OUT/LCD	To show the display on the TV screen, LCD screen and viewfinder	
REC LAMP	● ON	To light up the camera recording lamp at the front of your camcorder	CAMERA
	OFF	To turn the camera recording lamp off so that the subject is not aware of the recording	
INDICATOR (CCD-TRV87E only)	● BL OFF	To turn off the backlight on display window	PLAYER CAMERA
	BL ON	To turn on the backlight	

Notes (CCD-TRV87E only)

If you press DISPLAY with "DISPLAY" set to "V-OUT/LCD" in the menu settings, the picture from a TV or VCR will not appear on the LCD screen even when your camcorder is connected to outputs on the TV or VCR.

Notes on INDICATOR (CCD-TRV87E only)

- When you select "BL ON", battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, "BL ON" is automatically selected.

Resetting the date and time

The default clock setting is set to London time for United Kingdom and to Paris time for the other European countries.

The date and time are held in memory by the lithium battery. If you replace the lithium battery with the battery pack or other power source connected, you need not reset the date and time. You must reset the date and time when the lithium battery becomes dead with no power source installed.

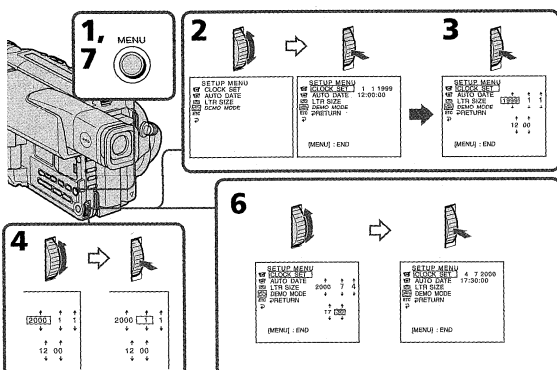
First, set the year, then the month, the day, the hour and then the minute.

- While your camcorder is in the standby mode, press MENU to display the menu.
- Turn the SEL/PUSH EXEC dial to select , then press the dial.
- Turn the SEL/PUSH EXEC dial to select , then press the dial.
- Turn the SEL/PUSH EXEC dial to adjust the desired year, then press the dial.
- Set the month, day and hour by turning the SEL/PUSH EXEC dial and pressing the dial.
- Set the minute by turning the SEL/PUSH EXEC dial and pressing the dial by the time signal. The clock starts to move.
- Press MENU to make the menu disappear. The time indicator appears.

Переустановка даты и времени

Часы установлены по умолчанию на время Лондона для моделей Соединенного Королевства и на время Парижа для моделей других европейских стран. Дата и время сохраняются в памяти с помощью литиевой батарейки. Если Вы от литиевой батарейки переключитесь на батарейный блок или другой подсоединенный источник питания, Вам нужно будет переустановить дату и время. Вам нужно также переустановить дату и время, когда литиевая батарейка разрядится и в это время не будет вставлен источник питания. Сначала установите год, затем месяц, день, час и минуту.

- В режиме ожидания видеокамеры нажмите кнопку MENU для отображения меню.
- Поверните диск SEL/PUSH EXEC для выбора индикации , а затем нажмите диск.
- Поверните диск SEL/PUSH EXEC для выбора команды CLOCK SET, а затем нажмите диск.
- Поверните диск SEL/PUSH EXEC для выбора нужного года, а затем нажмите диск.
- Установите месяц, день и час путем вращения диска SEL/PUSH EXEC и нажатия диска.
- Установите минуту путем вращения диска SEL/PUSH EXEC и нажатия диска в момент передачи сигнала точного времени. Часы начнут функционировать.
- Нажмите кнопку MENU для того, чтобы исчезло меню. Появится индикатор времени.



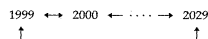
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Resetting the date and time

To check the preset date and time

Press DATE to display the date indicator. Press TIME (or TIME) and then press TIME (or DATE) to simultaneously display the date and time indicator. Press DATE and/or TIME again. The date and/or time indicator disappears.

The year changes as follows:



Auto date function

When you use your camcorder for the first time, turn it on and reset the date and time to your time before you start recording (p. 82). The date is automatically recorded for 10 seconds after you start recording (**Auto date function**). This function works only once a day.

Note on the time indicator

The internal clock of your camcorder operates on a 24-hour cycle.

Note on the auto date function

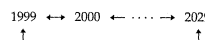
You can change the AUTO DATE setting by selecting ON or OFF in the menu settings. The auto date function automatically displays the date once a day. However, the date may automatically appear more than once a day if:
 - you reset the date and time.
 - you eject and insert the tape again.
 - you stop recording within 10 seconds.
 - you set AUTO DATE to OFF once and set it back ON in the menu settings.

Переустановка даты и времени

Для проверки предварительно установленных даты и времени

Нажмите кнопку DATE для отображения индикатора даты. Нажмите кнопку TIME для отображения индикатора времени. Нажмите кнопку DATE (или TIME), а затем нажмите кнопку TIME (или DATE) для одновременного отображения индикатора даты и времени. Нажмите еще раз кнопку DATE и/или TIME. Индикатор даты и/или времени исчезнет.

Год изменяется следующим образом:



Функция автоматической даты

Если Вы используете видеокамеру первый раз, включите ее и переустановите дату и время в соответствии со своим часовым поясом, прежде чем начать запись (стр. 82). Дата будет автоматически записываться в течение 10 секунд после начала записи (**функция автоматической даты**). Эта функция работает один раз в день.

Примечание по индикатору времени

Встроенные часы Вашей видеокамеры работают в 24-часовом режиме.

Примечание по функции автоматической даты

Вы можете изменять установку AUTO DATE путем выбора положений ON или OFF в установках меню. Функция автоматической даты автоматически отображает дату один раз в день. Однако, дата может автоматически появляться больше одного раза при:
 - переустановке даты и времени.
 - выталкивании и установке ленты обратно на место.
 - остановке записи в пределах 10 секунд.
 - установке команды AUTO DATE в положение OFF и возвращении в положение ON в установках меню.

Customizing Your Camcorder Выполнение индивидуальных установок на видеокамере

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— Additional Information —

Usable cassettes and playback modes

Selecting the cassette type

– CCD-TRV67E/TRV87E only

You can use both Hi8 and standard 8 mm video cassettes on your camcorder. When you use a Hi8 video cassette, recording and playback are carried out in the Hi8 system. When you use a standard 8 mm video cassette, recording and playback are carried out in the standard 8 mm system. If you play back a tape recorded on a different video recorder on your camcorder, the playback mode is automatically selected according to the format in which the tape has been recorded.

This Hi8 system is an extension of the standard 8 mm system, and was developed to produce higher quality pictures. You cannot playback a tape recorded in the Hi8 system correctly on video recorder/players other than a Hi8 video recorder/player.

What is Video 8 XA/video Hi8 XA ?

– CCD-TRV37E/TRV48E/TRV57E/TRV87E only

“Video 8 XR”/“video Hi8 XR” is a function that further enhances the image quality of Video 8/video Hi8. This function allows you to record and playback pictures with clearer details. Video tapes recorded on a camcorder having the “XR” function show excellent picture quality when they are played back on an “XR” camcorder.

The playback quality will be the normal quality of the standard 8 mm/Hi8 camcorder when video tapes recorded on an “XR” camcorder are played back by a conventional standard 8 mm/Hi8 camcorder or when video tapes recorded on a conventional standard 8 mm/Hi8 camcorder are played back on the “XR” camcorder.

* “XR” stands for “Extended Resolution.”

— Дополнительная информация —

Используемые кассеты и режимы воспроизведения

Выбор типа кассеты

– Только модель CCD-TRV67E/TRV87E

Вы можете использовать на Вашей видеокамере либо видеокассеты Hi8, либо стандартные 8-мм видеокассеты. Если Вы используете видеокассету Hi8, запись и воспроизведение будут выполняться в системе Hi8. Если Вы используете стандартную 8-мм видеокассету, запись и воспроизведение будут выполняться в стандартной 8-мм системе. Если Вы будете воспроизводить на Вашей видеокамере ленту, записанную на разных видеомагнитофонах, то режим воспроизведения будет выбираться автоматически в соответствии с форматом, в котором была записана лента.

Система Hi8 является модификацией стандартной 8-мм системы и была разработана для получения высококачественных изображений. Вы не сможете воспроизвести надлежащим образом ленту, записанную в системе Hi8, на видеомагнитофоне/плейере, который не относится к видеомагнитофону/плейеру Hi8.

Что такое Video 8 XA/video Hi8 XA ?

– Только модель CCD-TRV37E/TRV48E/TRV57E/TRV87E

“Video 8 XR”/“video Hi8 XR” является функцией, которая еще больше повышает качество изображения формата Video 8/video Hi8. Эта функция позволяет Вам записывать и воспроизводить изображения с уточненными деталями.

Видеоленты, записанные на видеокамере, имеющей функцию “XR”, обеспечивают превосходное качество изображения при воспроизведении на видеокамере “XR”. Качество воспроизведения будет обычным качеством видеокамеры стандарта 8 мм/Hi8, когда видеоленты, записанные на видеокамере “XR”, воспроизводятся на обычной видеокамере стандарта 8 мм/Hi8 или когда видеоленты, записанные на обычной видеокамере, воспроизводятся на видеокамере “XR”.

* “XR” означает “улучшенная разрешающая способность”.

Usable cassettes and playback modes

When you play back

The playback mode (SP/LP) and system, Hi8 or standard 8 mm(CCD-TRV67E/TRV87E only) are automatically selected according to the format in which the tape has been recorded. The quality of the recorded picture in the LP mode, however, will not be as good as the SP mode.

Note on AFM HiFi stereo

– CCD-TRV87E only

When you play back a tape, the sound will be monaural if:

- You record the tape on your camcorder, then play it back on an AFM HiFi monaural video recorder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on your camcorder.

Foreign 8 mm video

Because TV colour systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to “Using your camcorder abroad” to check the TV colour systems used in foreign countries.

Playing back an NTSC-recorded tape

You can play back tapes recorded in the NTSC video system using the SP mode.

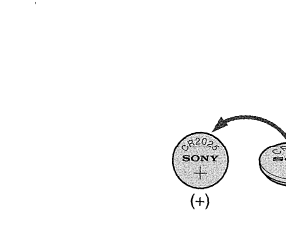
If the tape is recorded in the AFM HiFi system, the AFM HiFi sound is reproduced. (CCD-TRV87E only)

- However, note that the following will occur during playback of an NTSC-recorded tape.
- When playing back a tape on a TV screen, you may not get the original colour depending on the TV. When you play back on a Multi System TV, set NTSC PB to the desired mode in the menu settings.
- During playback, a black band appears on the lower part of the viewfinder.
- You cannot play back a tape recorded in the NTSC video system with the LP mode neither on the LCD nor on a TV screen.
- If a tape has portions recorded in PAL and NTSC video systems, the tape counter reading is not correct. This discrepancy is due to the difference between the counting cycle of the two video systems.
- You cannot edit the NTSC-recorded tape onto another VCR.

Changing the lithium battery in your camcorder

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu settings hold in memory by the lithium battery.

Insert the battery with the positive (+) side facing out. When the battery becomes weak or dead, the  indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 lithium battery. Use of any other battery may present a risk of fire or explosion.** Discard used batteries according to the manufacturer’s instructions.



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, nor dispose of it in fire.

Lithium battery

- Keep the lithium battery out of the reach of children.
- Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to ensure good contact.

Lithium battery installed at the factory

This battery may not last 1 year.

Используемые кассеты и режимы воспроизведения

При выполнении воспроизведения

Режим воспроизведения (SP/LP) и система, Hi8/стандартная 8-мм система (только модель CCD-TRV67E/TRV87E) выбираются автоматически в соответствии с форматом, в котором была выполнена запись на ленте. Однако, качество записанного изображения в режиме LP не будет таким хорошим, как в режиме SP.

Примечание по системе AFM HiFi

– Только модель CCD-TRV87E

При воспроизведении ленты звук будет монофоническим, если:

- Вы запишите ленту на Вашем компьютере, а затем будете воспроизводить ее на монофоническом видеомагнитофоне/плейере AFM HiFi.
- Вы запишите ленту на монофоническом видеомагнитофоне/плейере AFM HiFi, а затем будете воспроизводить на Вашем компьютере.

Иностранные 8-мм видеоленты

Поскольку системы цветного телевидения отличаются от страны к стране, возможно Вы не сможете воспроизводить иностранные предварительно записанные ленты. См. раздел “Использование Вашей видеокамеры за границей” для проверки систем цветного телевидения, используемых в других странах.

Воспроизведение лент, записанных в системе NTSC

Вы можете воспроизводить ленты, записанные в системе NTSC, используя режим SP.

Если лента записана в системе AFM HiFi, то будет воспроизводиться звук AFM HiFi. (Только модель CCD-TRV87E)

Однако, имейте в виду, что во время воспроизведения лент, записанных в системе NTSC, будет иметь место следующее.

- При воспроизведении ленты на экране телевизора Вы можете не получить первоначальные цвета в зависимости от типа телевизора. При воспроизведении на мультисистемном телевизоре установите переключатель NTSC PB на нужный режим в установках меню.
- Во время воспроизведения в нижней части видеоскринки будет появляться черная полоса.
- Вы не можете воспроизводить ленту, записанную в видеосистеме NTSC в режиме LP, ни на экране ЖКД, ни на экране телевизора.
- Если на ленте имеются участки, записанные в видеосистемах PAL и NTSC, то функционирование счетчика ленты будет неправильным. Это расхождение объясняется разницей между счетными циклами двух видеосистем.
- Вы не можете выполнять монтаж ленты, записанной в системе NTSC, на другой KBM.

Usable cassettes and playback modes

When you play back a dual sound track tape

– CCD-TRV87E only

When you play back a dual sound track tape recorded in an AFM HiFi stereo system, set “HiFi SOUND” to the desired mode in the menu settings (p. 70).

Sound from speaker

HiFi Sound Mode	Playing back a stereo tape	Playing back a dual sound track tape
STEREO	Stereo	Main sound and sub sound
1	Monaural	Main sound
2	Unnatural sound	Sub sound

You cannot record dual sound programmes on your camcorder.

Используемые кассеты и режимы воспроизведения

При воспроизведении ленты с двойной звуковой дорожкой

– Только модель CCD-TRV87E

При воспроизведении ленты с двойной звуковой дорожкой на стереофонической системе AFM HiFi установите команду “HiFi SOUND” на нужный режим в установках меню (стр. 70).

Звук от динамика

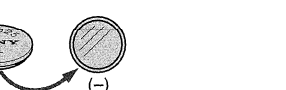
Режим звучания HiFi	Воспроизведение стереофонической ленты	Воспроизведение ленты с двойной звуковой дорожкой
STEREO	Стерео	Главный звук и вспомогательный звук
1	Монофонический звук	Главный звук
2	Необычный звук	Вспомогательный звук

Вы не можете записывать программы с двойным звучанием на Вашей видеокамере.

Замена литиевой батарейки в Вашей видеокамере

При замене литиевой батарейки батарейный блок или другой источник питания должен быть прикреплен к видеокамере. В противном случае Вам понадобится переустанавливать дату, время и другие пункты в установках меню, хранимых в памяти видеокамеры с помощью литиевой батарейки.

Вставьте батарейку так, чтобы положительный (+) полюс был обращен наружу. Если батарейка станет или разрядится, индикатор  будет мигать в видоскринке около 5 секунд, если переключатель POWER установлен в положение CAMERA. В этом случае, **замените батарейку на аналогичную литиевую батарейку Sony CR2025.** Использование какой-либо другой батарейки создает риск воспламенения или взрыва. Ликвидируйте использованные батарейки в соответствии с инструкциями предприятия-изготовителя.



ПРЕДУПРЕЖДЕНИЕ

Если с батарейкой неправильно обращаться, она может взорваться. Не перезаряжайте, не разбирайте и не бросайте в огонь батарейку.

Литиевая батарейка

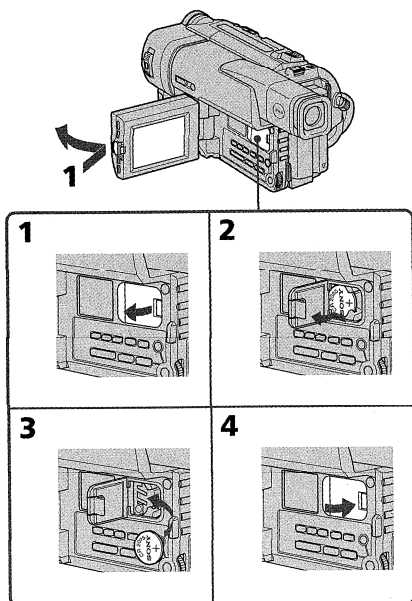
- Храните литиевую батарейку в месте, не доступном для детей.
- В случае, если кто-либо случайно проглотит батарейку, следует немедленно обратиться к врачу.
- Протрите батарейку сухой тканью для обеспечения хорошего контакта.

Литиевая батарейка, установленная на заводе
Этой батарейки может не хватить на 1 год.

Changing the lithium battery in your camcorder

Changing the lithium battery

- (1) Open the LCD panel and open the lid of the lithium battery compartment.
- (2) Push the lithium battery down once and pull it out from the holder.
- (3) Install a Sony CR2025 lithium battery with the positive (+) side facing out.
- (4) Close the lid.



Замена литиевой батарейки в Вашей видеокамере

Замена литиевой батарейки

- (1) Откройте панель ЖКД и откройте крышку отсека для литиевой батарейки.
- (2) Надавите литиевую батарейку вниз один раз и выньте ее из держателя.
- (3) Установите литиевую батарейку Sony CR2025 так, чтобы положительный (+) полюс был обращен наружу.
- (4) Закройте крышку.

English

Troubleshooting

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer or local authorized Sony service facility. If "C.C.L.D." appears on the LCD screen or in the viewfinder, the self-diagnosis display function has worked. See page 92.

In the recording mode

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	- The POWER switch is set to OFF (CHARGE) or PLAYER. → Set it to CAMERA. (p. 22) - STANDBY is set to LOCK. → Turn STANDBY to STANDBY. (p. 22) - The tape has run out. → Rewind the tape or insert a new one. (p. 21, 34) - The write-protect tab is set to expose the red mark. → Use a new tape or slide the tab. (p. 21) - The tape is stuck to the drum (moisture condensation). → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 100)
The power goes off.	- While being operated in the CAMERA mode, your camcorder has been in the standby mode for more than 5 minutes. → Turn STANDBY down once and then up again. (p. 22)
The image on the viewfinder screen is not clear.	- The viewfinder lens is not adjusted. → Adjust the viewfinder lens. (p. 27)
The SteadyShot function does not work. (CCD-TRV57E/TRV67E/TRV87E only)	- STEADYSHOT is set to OFF in the menu settings. → Set it to ON. (p. 70) - The SteadyShot function does not work when the wide mode is set to 16:9FULL.
The autofocus function does not work.	- FOCUS is set to MANUAL. → Set it to AUTO. (p. 58) - Shooting conditions are not suitable for autofocus. → Set FOCUS to MANUAL to focus manually. (p. 58)
The fader function does not work. (CCD-TRV87E only)	- The digital effect function is working. → Cancel it. (p. 51)
The video heads flash in the viewfinder.	- The video heads may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 101)
The picture does not appear in the viewfinder.	- The LCD panel is open. → Close the LCD panel. (p. 24)
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	The contrast between the subject and background is too high. This is not a malfunction.
A vertical band appears when you shoot a very bright subject.	This is not a malfunction.
Some tiny white spots appear in the viewfinder or on the LCD screen. (CCD-TRV87E only)	Slow shutter, low lux or Super NightShot mode is activated. This is not a malfunction.
An unknown picture is displayed in the viewfinder or on the LCD screen.	- If 10 minutes elapse after you set the POWER switch to CAMERA or DEMO MODE is set to ON in the menu settings without a cassette inserted, your camcorder automatically starts the demonstration. → Insert a cassette and the demonstration stops. You can also cancel DEMO MODE. (p. 75)

(Continued on the following page)

Additional Information
Дополнительная информация

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Troubleshooting

Symptom	Cause and/or Corrective Actions
The picture is recorded in incorrect or unnatural colours.	- NIGHTSHOT is set to ON. → Set it to OFF. (p. 29)
The picture appears too bright, and the subject does not appear in the viewfinder or on the LCD screen.	- NIGHTSHOT is set to ON in a bright place. → Set it to OFF, or use the NightShot function in a dark place. (p. 29)

In the playback mode

Symptom	Cause and/or Corrective Actions
The tape does not move when a video control button is pressed.	- The POWER switch is set to CAMERA or OFF (CHARGE). → Set it to PLAYER. (p. 34) - The tape has run out. → Rewind the tape. (p. 34)
The playback picture is not clear or does not appear.	- The television's video channel is not adjusted correctly. → Adjust it. (p. 38) - EDIT is set to ON in the menu settings. → Set it to OFF. (p. 70) - The video head may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 101)
No sound or only a low sound is heard when playing back a tape.	- The stereo tape is played back with HiFi SOUND set to 2 in the menu settings. (CCD-TRV87E only) → Set it to STEREO. (p. 70) - The volume is turned to minimum. → Turn up the volume. (p. 34)
The sound is muted or images do not appear when monitoring the picture from TV on the LCD screen. (CCD-TRV87E only)	Pull out A/V connecting cable from AUDIO/VIDEO jack, then connect it again.

In the recording and playback modes

Symptom	Cause and/or Corrective Actions
The power does not turn on.	- The battery pack is not installed, or is dead or nearly dead. → Install a charged battery pack. (p. 13, 14) - The AC power adaptor is not connected to the mains. → Connect the AC power adaptor to the mains. (p. 14, 19)
The end search function does not work.	- The tape was ejected after recording. - You have not recorded on the new cassette yet.

Troubleshooting

Symptom	Cause and/or Corrective Actions
The battery pack is quickly discharged.	- The operating temperature is too low. - The battery pack is not fully charged. → Charge the battery pack again. (p. 14) - The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 13)
The battery remaining indicator does not indicate the correct time.	- You have used the battery pack in an extremely hot or cold environment for a long time. - The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 13) - The battery is dead. → Use a charged battery pack. (p. 13, 14)
The power goes off although the battery remaining indicator indicates that the battery pack has enough power to operate.	→ Charge the battery pack fully again so that the indication on the battery remaining indicator is correct.
The cassette cannot be removed from the holder.	- The power source is disconnected. → Connect it firmly. (p. 13, 19) - The battery is dead. → Use a charged battery pack. (p. 13, 14)
The [] and [] indicators flash and no functions except for cassette ejection work.	- Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 100)

Others

Symptom	Cause and/or Corrective Actions
The Remote Commander supplied with your camcorder does not work. (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)	- COMMANDER is set to OFF in the menu settings. → Set it to ON. (p. 70) - Something is blocking the infrared rays. → Remove the obstacle. - The batteries inserted in the battery holder with the + - polarities incorrectly matching the + - marks. → Insert the batteries with the correct polarity. (p. 116) - The batteries are dead. → Insert new ones. (p. 116)
The date or time indicator does not appear, and the bars "----" appear.	Reset the date and time. (p. 82)
The picture from a TV or VCR does not appear even when your camcorder is connected to outputs on the TV or VCR. (CCD-TRV87E only)	- DISPLAY is set to V-OUT/LCD in the menu settings. → Set it to LCD. (p. 70)
The melody or beep sounds for 5 seconds.	- Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 100) - Some troubles has occurred in your camcorder. → Remove the cassette and insert it again, then operate your camcorder.
While charging the battery pack, no indicator appears or the indicator flashes in the display window.	- The AC power adaptor is disconnected. → Connect it firmly. (p. 14, 19) - Something is wrong with the battery pack. → Contact your Sony dealer or local authorized Sony service facility.

Additional Information
Дополнительная информация

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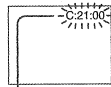
English

Self-diagnosis display

Your camcorder has a self-diagnosis display function.

This function displays the current condition of your camcorder as a 5-digit code (a combination of a letter and figures) in the viewfinder, on the LCD screen or in the display window. If a 5-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your camcorder.

Viewfinder (or LCD screen)



Self-diagnosis display

- C□□□□
You can service your camcorder yourself.
- E□□□□
Contact your Sony dealer or local authorized Sony facility.

Five-digit display	Cause and/or Corrective Actions
C:04:□□	• You are using a battery pack that is not an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack. (p. 18)
C:21:□□	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 100)
C:22:□□	• The video heads are dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 101)
C:31:□□	• A malfunction other than the above that you can service has occurred. → Remove the cassette and insert it again, then operate your camcorder. → Disconnect the mains lead of the AC power adaptor or remove the battery pack. After reconnecting the power source, operate your camcorder.
C:32:□□	
E:61:□□	• A malfunction that you cannot service has occurred. → Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit code. (example: E:61:10)
E:62:□□	

If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.

English

Warning indicators and messages

If indicators and messages appear in the viewfinder, on the LCD screen or in the display window, check the following:
See the page in parentheses "()" for more information.
The indicators and messages are displayed in yellow.

Warning indicators

The video heads are dirty

- Slow flashing:
 - You need to clean the heads using the Sony V8-25CLD cleaning cassette (not supplied) (p. 101).

The battery is dead or nearly dead

- Slow flashing:
 - The battery is nearly dead.
- Fast flashing:
 - The battery is dead (p. 14).
 - The battery is completely dead, and cannot be recharged.

Depending on conditions, the indicator may flash, even if there are 5 to 10 minutes remaining.

Warning indicator as to tape

- Slow flashing:
 - The tape is near the end.
 - No tape is inserted (p. 21).*
 - The write-protect tab on the cassette is out (red) (p. 21).*
- Fast flashing:
 - The tape has run out (p. 21, 34).*

The lithium battery is weak or is not installed (p. 87)

Self-diagnosis display (p. 92)

Moisture condensation has occurred*

- Fast flashing:
 - Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open (p. 100).

You need to eject the cassette

- Slow flashing:
 - The write-protect tab on the cassette is out (red) (p. 21).*
- Fast flashing:
 - Moisture condensation has occurred (p. 100).
 - The tape has run out (p. 21, 34).*
 - The self-diagnosis display function is activated (p. 92).*

Warning messages

- CLOCK SET
- For "InfoLITHIUM" BATTERY ONLY
- CLEANING CASSETTE
- START/STOP KEY
- ORC

Reset the date and time (p. 82).

Use an "InfoLITHIUM" battery pack (p. 18).

The video heads are dirty (p. 101).

Press the START/STOP button to activate the ORC setting. This message is displayed in white. (p. 74).

The ORC setting is working. This message is displayed in white (p. 74).

* You hear the melody or beep sound.

Using your camcorder abroad

Using your camcorder abroad

You can use your camcorder in any country or area with the AC power adaptor supplied with your camcorder within 100 V to 240 V AC, 50/60 Hz.

Your camcorder is a PAL system based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV with VIDEO/AUDIO input jack. The following shows TV colour systems used overseas.

PAL system

Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system

Brazil

PAL-N system

Argentina, Paraguay, Uruguay

NTSC system

Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system

Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Ukraine, etc.

Simple setting of clock by time difference

You can easily set the clock to the local time by setting a time difference. Select WORLD TIME in the menu settings. See page 76 for more information.

Использование Вашей видеокамеры за границей

Использование Вашей видеокамеры за границей

Вы можете использовать Вашу видеокамеру в любой стране или области с помощью сетевого адаптера переменного тока, прилагаемого к Вашей видеокамере, который можно использовать в пределах от 100 В до 240 В переменного тока с частотой 50/60 Гц.

Ваша видеокамера основана на системе PAL. Если Вы хотите просмотреть воспроизводимое изображение на телевизоре, то это должен быть телевизор, основанный на системе PAL, с входными гнездами VIDEO/AUDIO. Ниже приведены системы цветного телевидения, используемые за рубежом.

Система PAL

Австралия, Австрия, Бельгия, Великобритания, Германия, Голландия, Гонконг, Дания, Испания, Италия, Китай, Кувейт, Малайзия, Новая Зеландия, Норвегия, Португалия, Сингапур, Словацкая Республика, Таиланд, Финляндия, Чешская Республика, Швейцария, Швеция и т.д.

Система PAL-M

Бразилия

Система PAL-N

Аргентина, Парагвай, Уругвай

Система NTSC

Багамские острова, Боливия, Венесуэла, Канада, Колумбия, Корея, Мексика, Перу, Суринам, США, Тайвань, Филиппины, Центральная Америка, Чили, Эквадор, Ямайка, Япония и т.д.

Система SECAM

Болгария, Венгрия, Гвинея, Ирак, Иран, Монако, Польша, Россия, Украина, Франция и т.д.

Простая установка разницы во времени на часах

Вы можете легко установить часы на местное время путем установки разницы во времени. Выберите команду WORLD TIME в установках меню. Подробные сведения приведены на стр. 81.

Maintenance information and precautions

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep sounds and the indicator flashes. When the indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

If moisture condensation occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open. Your camcorder can be used again if the indicator does not appear when the power is turned on again.

Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:

- You bring your camcorder from a ski slope into a place warmed up by a heating device
- You bring your camcorder from an air-conditioned car or room into a hot place outside
- You use your camcorder after a squall or a shower
- You use your camcorder in a high temperature and humidity place

How to prevent moisture condensation

When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

Информация по уходу за аппаратом и меры предосторожности

Конденсация влаги

Если видеокамера принесена прямо из холодного места в теплое, то внутри видеокамеры, на поверхности ленты или на объективе может произойти конденсация влаги. В таком состоянии лента может прилипнуть к барабану головки и будет повреждена или же видеокамера не сможет работать надлежащим образом. Если внутри видеокамеры произошла конденсация влаги, то прозвучит зуммерный сигнал, а на экране ЖКД будет мигать индикатор . Если в то же самое время будет мигать индикатор , это значит, что в видеокамеру вставлена кассета. Если влага сконденсировалась на объективе, индикатор появляться не будет.

Если произошла конденсация влаги

Ни одна из функций, кроме выталкивания кассеты, не будет работать. Извлеките кассету, выключите видеокамеру и оставьте ее приблизительно на 1 час с открытым отсеком для кассеты. Если при повторном включении питания индикатор не появится на дисплее, Вы можете снова пользоваться видеокамерой.

Примечание по конденсации влаги

- Влага может образоваться, если Вы принесете Вашу видеокамеру из холодного места в теплое (или наоборот) или когда Вы используете Вашу видеокамеру в жарком месте в следующих случаях:
 - Вы принесли Вашу видеокамеру с лыжного склона в помещение, где функционирует обогреватель
 - Вы принесли Вашу видеокамеру из автомобиля или из комнаты с воздушным кондиционированием в жаркое место на улице
 - Вы используете видеокамеру после грозы или дождя
 - Вы используете Вашу видеокамеру в очень жарком и влажном месте

Как предотвратить конденсацию влаги

Если видеокамера принесена из холодного места в теплое, то положите видеокамеру в полиэтиленовый пакет и плотно закройте его. Выньте видеокамеру из полиэтиленового пакета, когда температура воздуха внутри пакета достигнет температуры окружающего воздуха (приблизительно через 1 час).

Maintenance information and precautions

Maintenance information

Cleaning the video head

To ensure normal recording and clear pictures, clean the video heads. The video head may be dirty when:

- The  indicator and "CLEANING CASSETTE" message appear one after another or the  indicator flashes on the LCD screen or in the viewfinder.
- Playback pictures contain noise.
- Playback pictures are hardly visible.
- Playback pictures do not appear.

If this happens, clean the video heads with the Sony V8-25CLD cleaning cassette (not supplied).



- [a] Slightly dirty
[b] Very dirty

Note on video heads

When the playback pictures are still contain noise even if you have cleaned the video heads with a cleaning cassette, the video heads may have worn down due to long use. If this is the case, they must be replaced with new heads. Contact your Sony dealer or local authorized Sony service facility.

Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using a LCD Cleaning Kit (not supplied) to clean the LCD screen.

Информация по уходу за аппаратом и меры предосторожности

Информация по уходу за аппаратом

Чистка видеоголовки

Для обеспечения нормальной записи и четкого изображения следует периодически чистить видеоголовки. Видеоголовки возможно загрязнены, если:

- На экране ЖКД или в видоискателе появляются один за другим индикатор  и сообщение "CLEANING CASSETTE" или же мигает индикатор .
- воспроизводимое изображение содержит помехи.
- воспроизводимое изображение с трудом различимо.
- воспроизводимое изображение не появляется на экране.

Если это произошло, почистите видеоголовки с помощью очистительной кассеты Sony V8-25CLD (не прилагается).

- [a] Слегка загрязнены
[b] Очень загрязнены

Примечание по видеоголовкам

Если воспроизводимое изображение все еще содержит помехи даже после того, как вы почистили видеоголовки с помощью очистительной кассеты, то, возможно, видеоголовки уже износились вследствие длительной эксплуатации видеокамеры. В этом случае, их следует заменить на новые. Обратитесь в сервисный центр Sony или в местное уполномоченное предприятие по обслуживанию изделий Sony.

Чистка экрана ЖКД

Если на экране ЖКД появляются отпечатки или пыль, рекомендуется воспользоваться очистительным набором для ЖКД (не прилагается) для чистки ЖКД.

Additional Information
Дополнительная информация

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Maintenance information and precautions

Built-in light

CCD-TRV57E/TRV67E/TRV87E only

- Do not knock or jolt the built-in light while it is turned on as it may damage the bulb or shorten the life of the bulb.
- Do not leave the built-in light on while it is resting on or against something; it may cause a fire or damage the built-in light.

On handling tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.

Camcorder care

- When your camcorder is not to be used for a long time, remove the battery. (CCD-TRV37E/TRV48E only)
- Remove the tape, and periodically turn on the power, operate the CAMERA and PLAYER sections and play back a tape for about 5 minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

AC power adaptor

- Unplug the unit from the mains when you are not using the unit for a long time. To disconnect the mains lead, pull it out by the plug. Never pull the mains lead itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the mains lead forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.

Информация по уходу за аппаратом и меры предосторожности

Встроенная подсветка

Только модель CCD-TRV57E/TRV67E/TRV87E

- Не стучите по устройству подсветки и не трясите его в то время, когда оно включено, поскольку это может повредить лампу накаливания или сократить ее срок службы.
- Не оставляйте встроенную подсветку включенной в то время, когда она на чем-то лежит или направлена на какой-либо предмет; это может привести к пожару или повредить внутреннюю подсветку.

Относительно обращения с лентами

Не вставляйте ничего в маленькие отверстия на задней стороне кассеты. Эти отверстия используются для определения типа и толщины ленты, а также для определения наличия или отсутствия лентки защиты записи на ленте.

Уход за видеокамерой

- Если Ваша видеокамера не будет использоваться в течение длительного периода времени, выньте батарейный блок (только модель CCD-TRV37E/TRV48E).
- Выньте ленту и периодически включайте питание, оперируйте устройствами CAMERA и PLAYER и воспроизводите ленту порядка 5-х минут если Ваша видеокамера не будет использоваться в течение длительного периода времени.
- Чистите объектив с помощью мягкой кисточки для удаления пыли. Если имеются отпечатки пальцев на объективе, их удалите их с помощью мягкой ткани.
- Чистите корпус видеокамеры с помощью сухой мягкой ткани или мягкой ткани, слегка смоченной раствором умеренного количества средства. Не используйте никаких типов растворителей, которые могут повредить отделку.
- Не допускайте попадания песка в видеокамеру. Если Вы используете видеокамеру на песчаном пляже или в каком-либо пыльном месте, предохраните аппарат от песка или пыли. Песок или пыль могут привести к неисправности аппарата, которая иногда может быть неисправимой.

Сетевой адаптер переменного тока

- Отсоедините аппарат от электрической сети, если он не используется длительное время. Для отсоединения сетевого шнура потяните его за разъем. Никогда не тяните за сам шнур.
- Не эксплуатируйте аппарат с поврежденным шнуром или же в случае, если аппарат упал или был поврежден.
- Не сгибайте сетевой провод силой и не ставьте на него тяжелые предметы. Это повредит провод и может привести к пожару или поражению электрическим током.

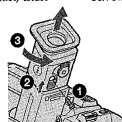
Additional Information
Дополнительная информация

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Maintenance information and precautions

Removing dust from inside the viewfinder

- 1 Remove the screw with a screwdriver (not supplied).
- 2 Then, while holding the RELEASE knob up, turn the eyecup in a counterclockwise direction and pull it out.
- 3 Clean the surface with a commercially available blower for a still camera.
- 4 Turn the eyecup in a clockwise direction, then replace the screw.



Caution

Do not remove any other screws. You may remove only the screw to remove the eyecup.

Precautions

Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this operating instructions.
- If any solid object or liquid get inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF (CHARGE) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration.
- Do not touch the LCD screen with your fingers or a sharp-pointed object.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

Maintenance information and precautions

- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
 - Extremely hot or cold
 - Dusty or dirty
 - Very humid
 - Vibrating

Battery pack

- Use only the specified charger or video equipment with the charging function.
- To prevent accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Attach the battery pack to the video equipment securely.
- Charging while some capacity remains does not affect the original battery capacity.

Notes on dry batteries

CCD-TRV48E/TRV57E/TRV67E/TRV87E only

- To avoid possible damage from battery leakage or corrosion, observe the following:
 - Be sure to insert the batteries with the + - polarities matched to the + - marks.
 - Dry batteries are not rechargeable.
 - Do not use a combination of new and old batteries.
 - Do not use different types of batteries.
 - Current flows from batteries when you are not using them for a long time.
 - Do not use leaking batteries.

If batteries are leaking

- Wipe off the liquid in the battery compartment carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

Информация по уходу за аппаратом и меры предосторожности

Удаление пыли изнутри видоискателя

- 1 Удалите винт с помощью отвертки (не прилагается).
- 2 Затем, удерживая кнопку RELEASE вверх, поверните окуляр против часовой стрелки и вытащите его.
- 3 Почистите поверхность с помощью воздушной струи от фотоаппарата, которая приобретается отдельно.
- 4 Поверните окуляр по часовой стрелке, а затем установите на место винт.

Внимание

Не отвинчивайте другие винты. Вы можете отвинчивать только винт для снятия окуляра.

Меры предосторожности

Эксплуатация видеокамеры

- Эксплуатируйте видеокамеру от 7,2 В (батарейный блок) или 8,4 В (сетевой адаптер переменного тока).
- Что касается эксплуатации видеокамеры от постоянного и переменного тока, используйте принадлежности, рекомендуемые в данной инструкции по эксплуатации.
- Если какой-нибудь твердый предмет или жидкость попали внутрь корпуса, то выключите видеокамеру и проверьте ее у дилера Sony перед дальнейшей ее эксплуатацией.
- Избегайте грубого обращения с видеокамерой или механических ударов. Будьте особенно осторожны с объективом.
- Если видеокамера не используется, держите переключатель POWER в положении OFF (CHARGE).
- Не заворачивайте Вашу видеокамеру, например, в полотенце, и не эксплуатируйте ее в таком состоянии. В противном случае может произойти повышение температуры внутри видеокамеры.
- Держите Вашу видеокамеру подальше от сильных магнитных полей или механической вибрации.
- Не прикасайтесь к экрану ЖКД своими пальцами или острыми предметами.
- При эксплуатации Вашей видеокамеры в холодном месте, на экране ЖКД может появляться остаточное изображение. Это не является неисправностью.
- При эксплуатации Вашей видеокамеры, задняя сторона экрана ЖКД может нагреваться. Это не является неисправностью.

Информация по уходу за аппаратом и меры предосторожности

- Будьте осторожны, чтобы никакие металлические предметы не соприкасались с металлическими частями соединительной секции. Если это случится, то может произойти короткое замыкание, и аппарат может быть поврежден.
- Всегда поддерживайте металлические контакты в чистоте.
- Не разбирайте аппарат.
- Не подвергайте аппарат механической вибрации и не роняйте его.
- При использовании аппарата, особенно во время зарядки, держите его подальше от приемников AM-радиовещания и видеоаппаратуры. Приемники AM-радиовещания и видеоаппаратура нарушают AM-радиоприем и работу видеоаппаратуры.
- В процессе эксплуатации аппарат нагревается. Это является вполне нормальным.
- Не размещайте аппарат в местах:
 - чрезмерно жарких или холодных
 - пыльных или грязных
 - Очень влажных
 - Подверженных вибрации

Батарейный блок

- Используйте только указанное зарядное устройство или видеоборудование для функции зарядки.
- Для предотвращения несчастного случая вследствие короткого замыкания не позволяйте металлическим предметам соприкасаться с контактами батарейного блока.
- Храните батарейный блок подальше от огня.
- Никогда не подвергайте батарейный блок воздействию температуры свыше 60°C, как например, в автомобиле, припаркованном на солнце или под прямыми солнечными светом.
- Сохраняйте батарейный блок сухим.
- Не подвергайте батарейный блок каким-либо механическим ударам.
- Не разбирайте и не модифицируйте батарейный блок.
- Надежно прикрепляйте батарейный блок к видеоаппаратуре.
- Зарядка при оставшейся мощности не влияет на исходную емкость батарейного блока.

Примечание к сухим батарейкам

Только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E

- Во избежание возможного повреждения видеокамеры вследствие утечки внутреннего вещества батареек или коррозии соблюдайте следующее:
 - При установке батареек соблюдайте правильную полярность + - в соответствии с метками + -.
 - Сухие батарейки нельзя перезаряжать.
 - Не используйте новые батарейки вместе со старыми.
 - Не используйте батарейки разного типа.
 - Если батарейки не используются длительное время, они постепенно разряжаются.
 - Не используйте батарейки, которые потекли.

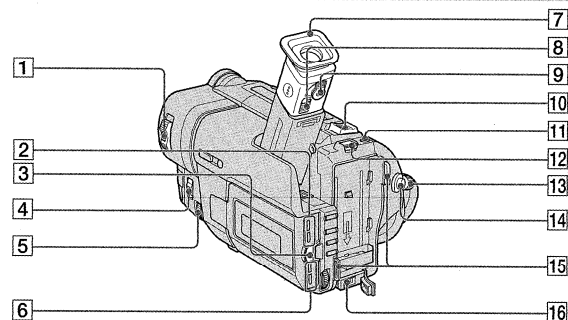
Если произошла утечка внутреннего вещества батареек

- Перед тем, как заменить батарейки, тщательно протрите остатки жидкости в отсеке для батареек.
- В случае попадания жидкости на кожу, промойте жидкостью водой.
- В случае попадания жидкости в глаза, промойте свои глаза большим количеством воды, после чего обратитесь к врачу.

В случае возникновения каких-либо проблем, отключите Вашу видеокамеру от источника питания и обратитесь в ближайший сервисный центр Sony.

Identifying the parts and controls

Camcorder



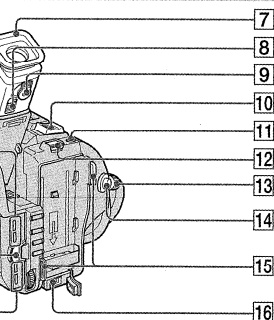
- 1 POWER switch (p. 22)
- 2 LCD BRIGHT buttons (p. 24)
- 3 OPEN button (p. 22)
- 4 FOCUS switch (p. 58)
- 5 NEAR/FAR dial (p. 58)
- 6 VOLUME buttons (p. 34)
- 7 Eyecup (p. 102)
- 8 Eyecup RELEASE knob (p. 102)
- 9 Viewfinder lens adjustment lever (p. 27)
- 10 Power zoom lever (p. 25)
- 11 PHOTO button (CCD-TRV87E only) (p. 41)
- 12 BATT RELEASE lever (p. 13)
- 13 STANDBY switch (p. 22)
- 14 START/STOP button (p. 22)
- 15 Hooks for shoulder strap (p. 14, 19)
- 16 DC IN jack (p. 14, 19)



This mark indicates that this product is a genuine accessory for Sony video products. When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Обозначение частей и регуляторов

Видеокамера



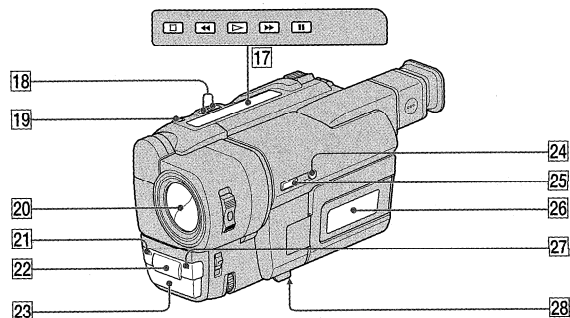
- 1 Переключатель POWER (стр. 22)
- 2 Кнопки LCD BRIGHT (стр. 24)
- 3 Кнопка OPEN (стр. 22)
- 4 Переключатель FOCUS (стр. 58)
- 5 Диск NEAR/FAR (стр. 58)
- 6 Кнопки VOLUME (стр. 34)
- 7 Окуляр (стр. 102)
- 8 Кнопка окуляра RELEASE (стр. 102)
- 9 Рычаг регулировки объектива видеоискателя (стр. 27)
- 10 Рычаг приводного вариообъектива (стр. 25)
- 11 Кнопка PHOTO (только модель CCD-TRV87E) (стр. 41)
- 12 Рычаг BATT RELEASE (стр. 13)
- 13 Переключатель STANDBY (стр. 22)
- 14 Кнопка START/STOP (стр. 22)
- 15 Крючок для плечевого ремня (стр. 14, 19)
- 16 Гнездо DC IN (стр. 14, 19)



Данный знак означает, что это изделие является подлинной принадлежностью для видеопаратуры Sony. При покупке видеопаратуры Sony рекомендуется приобретать для нее принадлежности Sony с таким знаком "GENUINE VIDEO ACCESSORIES".

Identifying the parts and controls

Обозначение частей и регуляторов



- 17 Video control buttons (p. 34, 36)
 - STOP (stop)
 - ◀ REW (rewind)
 - ▶ PLAY (playback)
 - ▶▶ FF (fastforward)
 - || PAUSE (pause)
- 18 EDITSEARCH button (p. 32)
- 19 S.LASER LINK button (CCD-TRV87E only) (p. 40)
- 20 Lens cover (p. 22)
- 21 Camera recording lamp (p. 22)
- 22 Infrared rays emitter (p. 29, 40)
- 23 Microphone
- 24 SUPER NIGHTSHOT button (CCD-TRV87E only) (p. 29)
- 25 NIGHTSHOT switch (p. 29)
- 26 Display window (p. 117)
- 27 Remote sensor (CCD-TRV48E/TRV57E/TRV67E/TRV87E only) (p. 115)
- 28 Tripod receptacle (base)

Make sure that the length of the tripod screw is less than 6.5 mm (9/32 inch). Otherwise, you cannot attach the tripod securely and the screw may damage your camcorder.

- 17 Кнопки видеоконтроля (стр. 34, 36)
 - STOP (остановка)
 - ◀ REW (ускоренная перемотка назад)
 - ▶ PLAY (воспроизведение)
 - ▶▶ FF (ускоренная перемотка вперед)
 - || PAUSE (пауза)
- 18 Кнопка EDITSEARCH (стр. 32)
- 19 Кнопка S.LASER LINK (только модель CCD-TRV87E) (стр. 40)
- 20 Крышка объектива (стр. 22)
- 21 Лампочка записи видеокамеры (стр. 22)
- 22 Излучатель инфракрасных лучей (стр. 29, 40)
- 23 Микрофон
- 24 Кнопка SUPER NIGHTSHOT (только модель CCD-TRV87E) (стр. 29)
- 25 Переключатель NIGHTSHOT (стр. 29)
- 26 Окошко дисплея (стр. 117)
- 27 Датчик дистанционного управления (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E) (стр. 115)
- 28 Гнездо для треноги (основание)

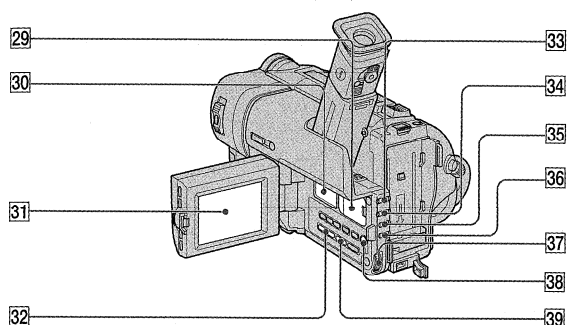
Убедитесь, что длина винта треноги менее 6,5 мм. В противном случае Вы не сможете надежно прикрепить треногу, а винт может повредить Вашу видеокамеру.

What is SUPER LASER LINK? (CCD-TRV87E only)
The SUPER LASER LINK system sends and receives pictures and sound between video equipment having the mark by using infrared rays.

Что такое SUPER LASER LINK? (Только модель CCD-TRV87E)
Система SUPER LASER LINK посылает и принимает сигналы изображения и звука между видеопаратурой, имеющей знак с помощью инфракрасных лучей.

Identifying the parts and controls

Обозначение частей и регуляторов



- 29 Lithium battery compartment (p. 88)
- 30 Speaker
- 31 LCD screen (p. 24)
- 32 DIGITAL EFFECT button (CCD-TRV87E only) (p. 52)
- 33 FADER button (p. 47)
- 34 BACK LIGHT button (p. 28)
- 35 PROGRAM AE button (p. 55)
- 36 EXPOSURE button (p. 57)
- 37 SEL/PUSH EXEC dial (p. 41, 71)
- 38 MENU button (p. 71)
- 39 PICTURE EFFECT button (p. 50)

- 29 Отсек для литиевой батарейки (стр. 88)
- 30 Динамик
- 31 Экран ЖКД (стр. 24)
- 32 Кнопка DIGITAL EFFECT (только модель CCD-TRV87E) (стр. 52)
- 33 Кнопка FADER (стр. 47)
- 34 Кнопка BACK LIGHT (стр. 28)
- 35 Кнопка PROGRAM AE (стр. 55)
- 36 Кнопка EXPOSURE (стр. 57)
- 37 Диск SEL/PUSH EXEC (стр. 41, 71)
- 38 Кнопка MENU (стр. 71)
- 39 Кнопка PICTURE EFFECT (стр. 50)

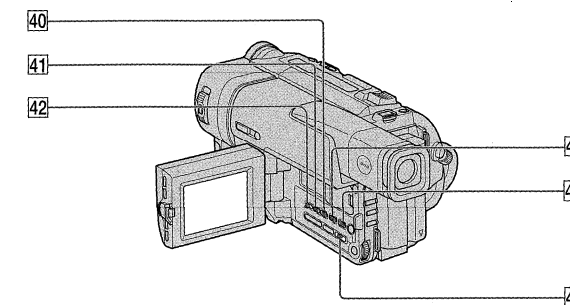
Attaching the shoulder strap
Attach the shoulder strap supplied with your camcorder to the hooks for the shoulder strap.

Прикрепление плечевого ремня
Прикрепите плечевой ремень, прилагаемый к Вашей видеокамере, к крючкам для плечевого ремня.



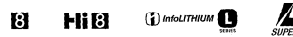
Identifying the parts and controls

Обозначение частей и регуляторов



- 40 COUNTER RESET button (p. 23)
- 41 TIME button (p. 31)
- 42 DATE button (p. 31)
- 43 DISPLAY button (p. 35)
- 44 END SEARCH button (p. 32)
- 45 TITLE button (p. 60)

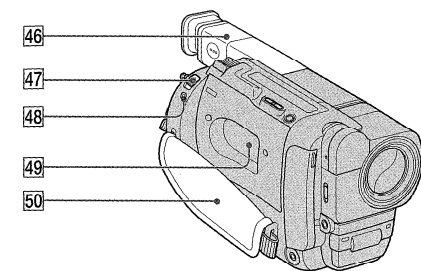
- 40 Кнопка COUNTER RESET (стр. 23)
- 41 Кнопка TIME (стр. 31)
- 42 Кнопка DATE (стр. 31)
- 43 Кнопка DISPLAY (стр. 35)
- 44 Кнопка END SEARCH (стр. 32)
- 45 Кнопка TITLE (стр. 60)



These are trademarks./Товарные знаки.

Identifying the parts and controls

Обозначение частей и регуляторов

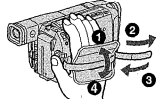


- 46 Viewfinder (p. 27)
 47 EJECT switch (p. 21)
 48 LANC $\square$ control jack
 LANC stands for Local Application Control Bus System. The $\square$ control jack is used for controlling the tape transport of video equipment and other peripherals connected to the video equipment. This jack has the same function as the jack indicated as CONTROL L or REMOTE.
 49 Cassette compartment (p. 21)
 50 Grip strap

- 46 Видоискатель (стр. 27)
 47 Выключатель EJECT (стр. 21)
 48 Гнездо управления LANC $\square$
 LANC означает систему канала местного управления. Гнездо управления $\square$ используется для контроля за перемещением ленты видеоаппаратуры и периферийных устройств, подключенных к ней. Данное гнездо имеет такую же функцию, как и разъемы, обозначенные как CONTROL L или REMOTE.
 49 Кассетный отсек (стр. 21)
 50 Ремень для захвата

Fastening the grip strap

Прикрепление ремня для захвата



Fasten the grip strap firmly.

Прикрепите ремень для захвата надежно.

Quick Reference Оперативный справочник

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Identifying the parts and controls

Remote Commander

– CCD-TRV48E/TRV57E/TRV67E/TRV87E only

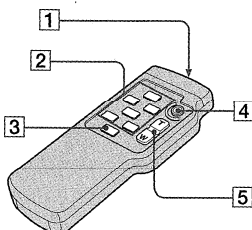
The buttons that have the same name on the Remote Commander as on your camcorder function identically to the buttons on your camcorder.

Обозначение частей и регуляторов

Пульт дистанционного управления

– Только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E

Кнопки пульта дистанционного управления, которые имеют одинаковые наименования с кнопками на видеокамере, функционируют идентично.



- 1 Transmitter
 Point toward the remote sensor to control your camcorder after turning on your camcorder.
 2 Video control buttons (p. 36)
 3 DISPLAY button (p. 35)
 4 START/STOP button (p. 22)
 5 Power zoom button (p. 25)

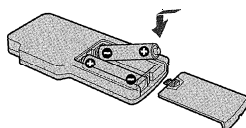
- 1 Передатчик
 Нацельте в направлении дистанционного датчика Вашей видеокамеры после включения видеокамеры.
 2 Кнопки видеоконтроля (стр. 36)
 3 Кнопка DISPLAY (стр. 35)
 4 Кнопка START/STOP (стр. 22)
 5 Кнопка приводного вариообъектива (стр. 25)

To prepare the Remote Commander

Insert 2 R6 (size AA) batteries by matching the + and – polarities to the + – marks inside the battery compartment.

Для подготовки пульта дистанционного управления

Вставьте 2 батарейки R6 (размера AA), соблюдая надлежащую полярность + и – на батарейках в соответствии со знаками + – внутри отсека для батареек.



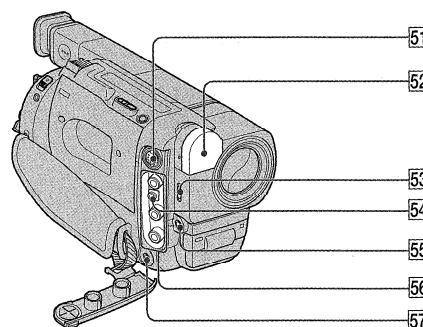
Quick Reference Оперативный справочник

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Identifying the parts and controls

Обозначение частей и регуляторов



- 51 S VIDEO jack (CCD-TRV67E/TRV87E only) (p. 38)
 52 Built-in light (CCD-TRV57E/TRV67E/TRV87E only) (p. 64)
 53 LIGHT switch (CCD-TRV57E/TRV67E/TRV87E only) (p. 64)
 54 RFU DC OUT (RFU adaptor DC output) jack (p. 39)
 55 MIC jack (PLUG IN POWER)
 Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone. If you connect a 2-pin microphone, supply power from DC OUT jack. In this case, WIND in the menu settings does not function. (CCD-TRV87E only)
 56 AUDIO/VIDEO jacks (p. 38)
 57 $\square$ (headphones) jack (CCD-TRV87E only)/
 $\oplus$ (earphone) jack (CCD-TRV37E/TRV48E/TRV57E/TRV67E only)
 When you use headphones (CCD-TRV87E only)/earphone (CCD-TRV37E/TRV48E/TRV57E/TRV67E only), the speaker on your camcorder is silent.

- 51 Гнездо S VIDEO (только модель CCD-TRV67E/TRV87E) (стр. 38)
 52 Встроенная подсветка (только модель CCD-TRV57E/TRV67E/TRV87E) (стр. 64)
 53 Выключатель LIGHT (только модель CCD-TRV57E/TRV67E/TRV87E) (стр. 64)
 54 Гнездо RFU DC OUT (выход пост. тока ВЧ-адаптера) (стр. 39)
 55 Гнездо MIC (PLUG IN POWER)
 Для подсоединения внешнего микрофона (не прилагается). Это гнездо также позволяет подключить микрофон "с выключателем питания". При подсоединении 2-штырькового микрофона, подвод питания следует выполнять через гнездо DC OUT. В этом случае функция WIND в установках меню не работает. (Только модель CCD-TRV87E)
 56 Гнезда VIDEO/AUDIO (стр. 38)
 57 $\square$ гнездо (головных телефонов) (только модель CCD-TRV87E)/ $\oplus$ гнездо (наушников) (только модель CCD-TRV37E/TRV48E/TRV57E/TRV67E)
 При использовании головных телефонов (только модель CCD-TRV87E)/наушников (только модель CCD-TRV37E/TRV48E/TRV57E/TRV67E) акустическая система Вашей видеокамеры будет молчать.

Identifying the parts and controls

Notes on the Remote Commander

- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

Обозначение частей и регуляторов

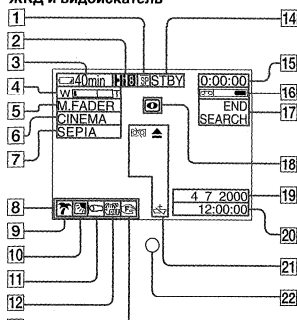
Примечания к пульту дистанционного управления

- Держите дистанционный датчик подальше от сильных источников света, как например, прямые солнечные лучи или иллюминация. В противном случае дистанционное управление может не действовать.
- Данная видеокамера работает в режиме пульта дистанционного управления VTR 2. Режимы пульта дистанционного управления 1, 2 и 3 используются для отличия данной видеокамеры от других KBM фирмы Sony во избежание неправильной работы дистанционного управления. Если Вы используете другой KBM фирмы Sony, работающий в режиме VTR 2, мы рекомендуем Вам изменить режим пульта дистанционного управления или закрыть дистанционный датчик KBM черной бумагой.

Identifying the parts and controls

Operation indicators

LCD screen and Viewfinder/Экран ЖКД и видоискатель

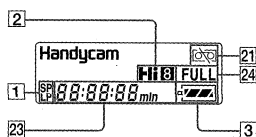


- 1 Recording mode indicator (p. 74)/Mirror mode indicator (p. 24)
- 2 Hi8 format indicator (CCD-TRV67E/TRV87E only) (p. 28, 84)
- 3 Remaining battery time indicator (p. 28)
- 4 Exposure indicator (p. 57)/Zoom indicator (p. 25)
- 5 Fader indicator (p. 47)/Digital effect indicator (CCD-TRV87E only) (p. 52)
- 6 Wide mode indicator (p. 44)
- 7 Picture effect indicator (p. 50)
- 8 LCD bright indicator (p. 24)/Volume indicator (p. 34)
- 9 PROGRAM AE indicator (p. 54)
- 10 Backlight indicator (p. 28)
- 11 Wind indicator (CCD-TRV87E only) (p. 72)
- 12 SteadyShot off indicator (CCD-TRV57E/TRV67E/TRV87E only) (p. 72)
- 13 Manual focusing indicator (p. 58)

Обозначение частей и регуляторов

Рабочие индикаторы

Display window/Окошко дисплея



- 1 Индикатор режима записи (стр. 74)/индикатор зеркального режима (стр. 24)
- 2 Индикатор формата Hi8 (только модель CCD-TRV67E/TRV87E) (стр. 28, 84)
- 3 Индикатор оставшегося заряда батарейного блока (стр. 28)
- 4 Индикатор экспозиции (стр. 57)/индикатор вариобъектива (стр. 25)
- 5 Индикатор фейдера (стр. 47)/индикатор цифрового эффекта (только модель CCD-TRV87E) (стр. 52)
- 6 Индикатор широкоформатного режима (стр. 44)
- 7 Индикатор эффекта изображения (стр. 50)
- 8 Индикатор яркости ЖКД (стр. 24)/индикатор громкости (стр. 34)
- 9 Индикатор PROGRAM AE (стр. 54)
- 10 Индикатор задней подсветки (стр. 28)
- 11 Индикатор ветрового фильтра (только модель CCD-TRV87E) (стр. 72)
- 12 Индикатор выключенной устойчивой съемки (только модель CCD-TRV57E/TRV67E/TRV87E) (стр. 72)
- 13 Индикатор ручной фокусировки (стр. 58)
- 14 STBY/REC indicator (p. 22)/Video control mode indicator (p. 36)
- 15 Tape counter indicator (p. 28)/Self-diagnosis display indicator (p. 92)/Photo mode indicator (CCD-TRV87E only) (p. 41)
- 16 Remaining tape indicator (p. 28)
- 17 END SEARCH indicator (p. 32)
- 18 NIGHTSHOT indicator (p. 29)
- 19 AUTO DATE indicator (p. 83)/Date indicator (p. 31, 82)
- 20 Time indicator (p. 31, 82)
- 21 Warning indicators (p. 93)
- 22 Recording lamp (p. 22)
- 23 Date or time indicator (p. 31, 83)/Tape counter indicator (p. 28)/Self-diagnosis display indicator (p. 92)/Remaining battery time indicator (p. 14)
- 24 FULL charge indicator (p. 14)

Identifying the parts and controls

- 14 STBY/REC indicator (p. 22)/Video control mode indicator (p. 36)
- 15 Tape counter indicator (p. 28)/Self-diagnosis display indicator (p. 92)/Photo mode indicator (CCD-TRV87E only) (p. 41)
- 16 Remaining tape indicator (p. 28)
- 17 END SEARCH indicator (p. 32)
- 18 NIGHTSHOT indicator (p. 29)
- 19 AUTO DATE indicator (p. 83)/Date indicator (p. 31, 82)
- 20 Time indicator (p. 31, 82)
- 21 Warning indicators (p. 93)
- 22 Recording lamp (p. 22)
- 23 Date or time indicator (p. 31, 83)/Tape counter indicator (p. 28)/Self-diagnosis display indicator (p. 92)/Remaining battery time indicator (p. 14)
- 24 FULL charge indicator (p. 14)

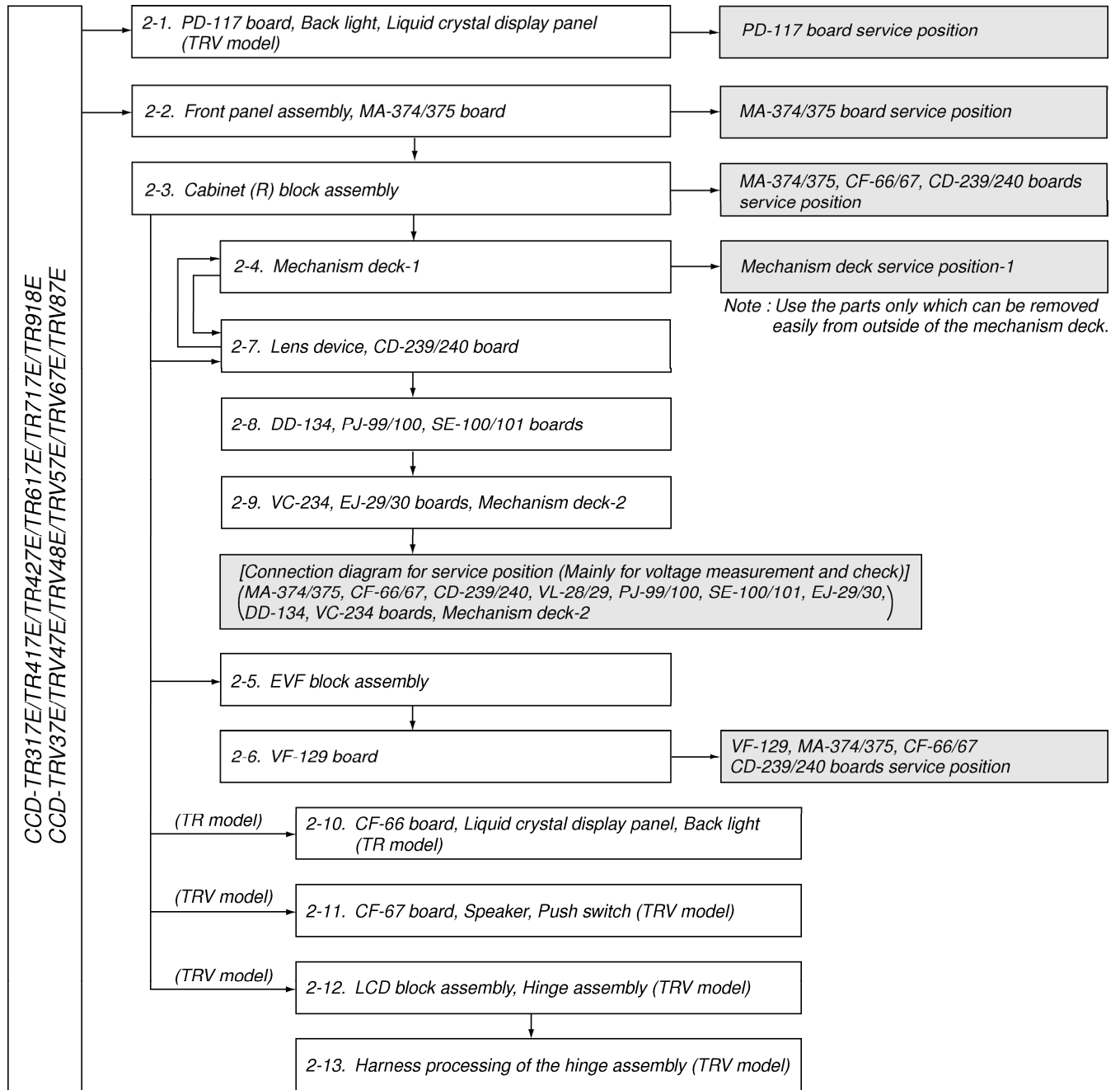
Обозначение частей и регуляторов

- 14 Индикатор STBY/REC (стр. 22)/Индикатор режима видеоконтроля (стр. 36)
- 15 Индикатор счетчика ленты (стр. 28)/индикатор функции самодиагностики (стр. 92)/индикатор фоторежима (только модель CCD-TRV87E) (стр. 41)
- 16 Индикатор оставшейся ленты (стр. 28)
- 17 Индикатор END SEARCH (стр. 32)
- 18 Индикатор NIGHTSHOT (стр. 29)
- 19 Индикатор AUTO DATE (стр. 83)/индикатор даты (стр. 31, 82)
- 20 Индикатор времени (стр. 31, 82)
- 21 Предупреждающие индикаторы (стр. 93)
- 22 Лампочка записи (стр. 22)
- 23 Индикатор даты или времени (стр. 31, 83)/индикатор счетчика ленты (стр. 28)/индикатор функции самодиагностики (стр. 92)/индикатор времени оставшегося заряда батарейного блока (стр. 14)
- 24 Индикатор зарядки FULL (стр. 14)

Quick Reference Оперативный справочник

SECTION 2 DISASSEMBLY

The following flow chart shows the disassembly procedure.



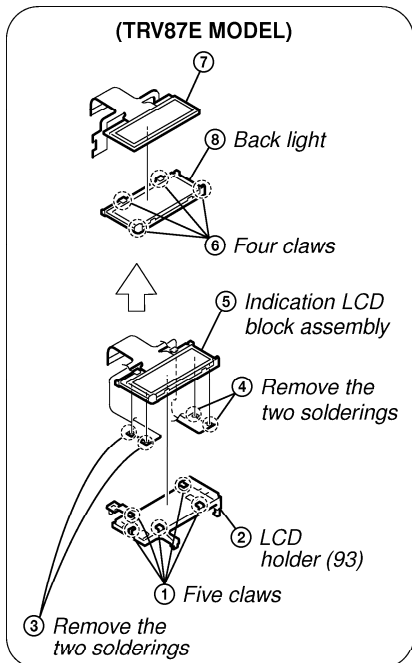
TR model	: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV model	: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
Super night shot model	: CCD-TR918E/TRV87E
TR night shot model	: CCD-TR317E/TR417E/TR427E/TR617E/TR717E
TRV night shot model	: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E
Stereo model	: CCD-TR918E/TRV87E
TR steady shot model	: CCD-TR617E/TR717E/TR918E
Video light model	: CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
TR video light model	: CCD-TR617E/TR717E/TR918E
TRV video light model	: CCD-TRV57E/TRV67E/TRV87E
No video light model	: CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E
AEP, EE, NE, RU, UK model	: CCD-TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/TRV57E: AEP, EE, NE, RU, UK/ TRV67E: AEP, EE, NE, RU, UK/TRV87E: AEP, EE, NE, RU, UK

- Abbreviation
- EE : East European model
- NE : North European model
- RU : Russian model

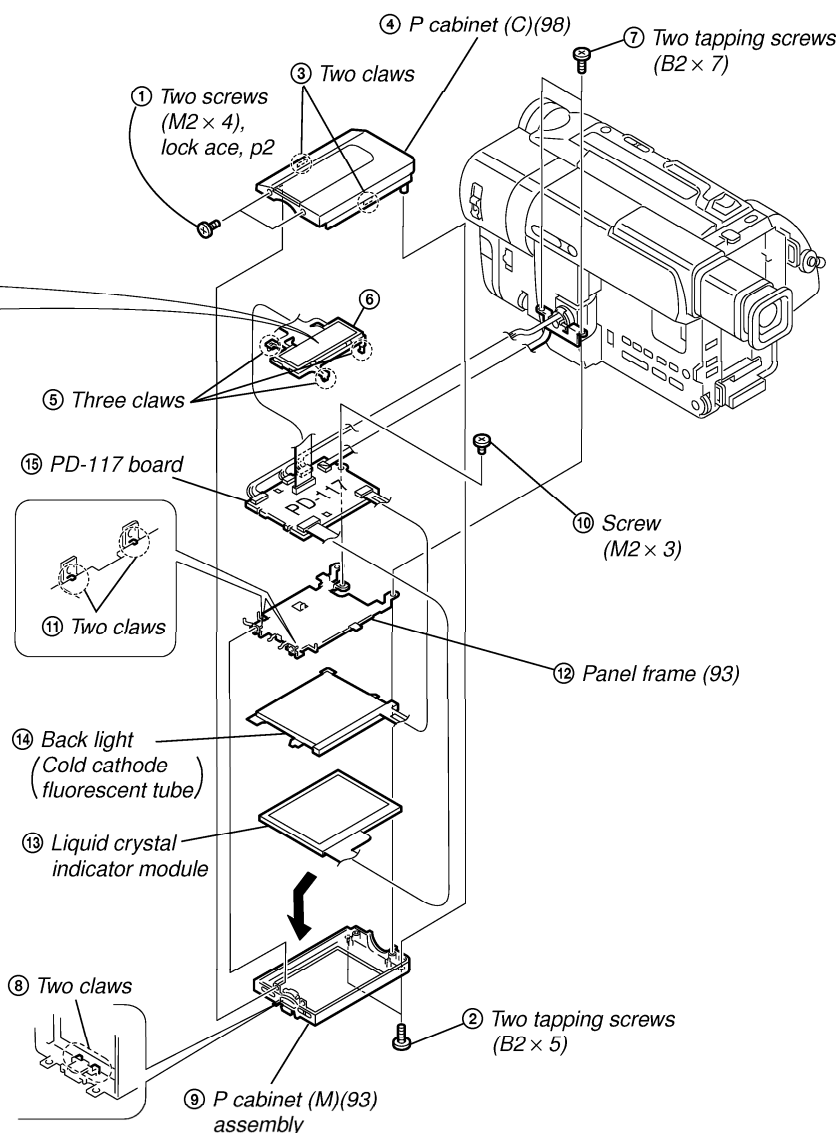
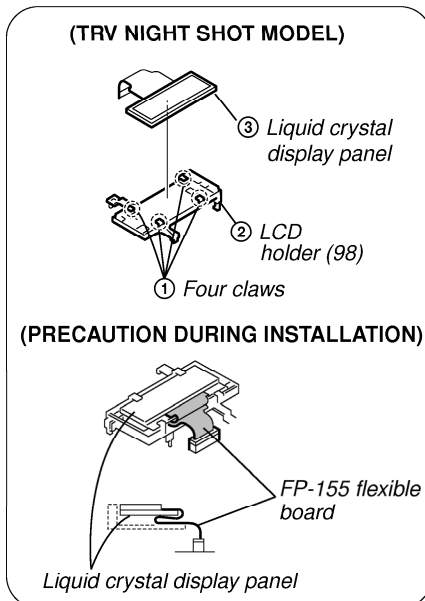
NOTE: Follow the disassembly procedure in the numerical order given.

2-1. PD-117 BOARD, BACK LIGHT, LIQUID CRYSTAL DISPLAY PANEL (TRV MODEL)

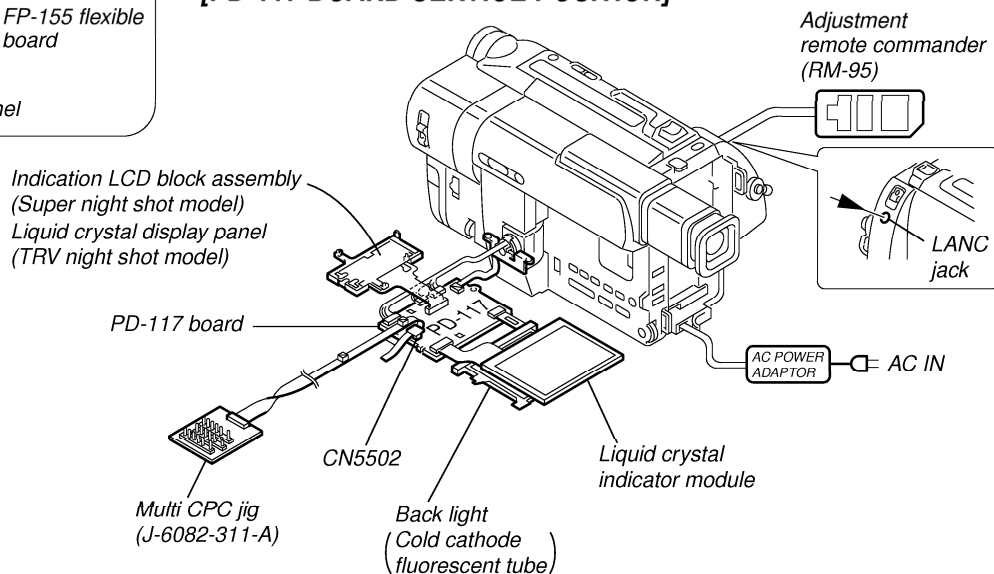
REMOVING THE BACK LIGHT



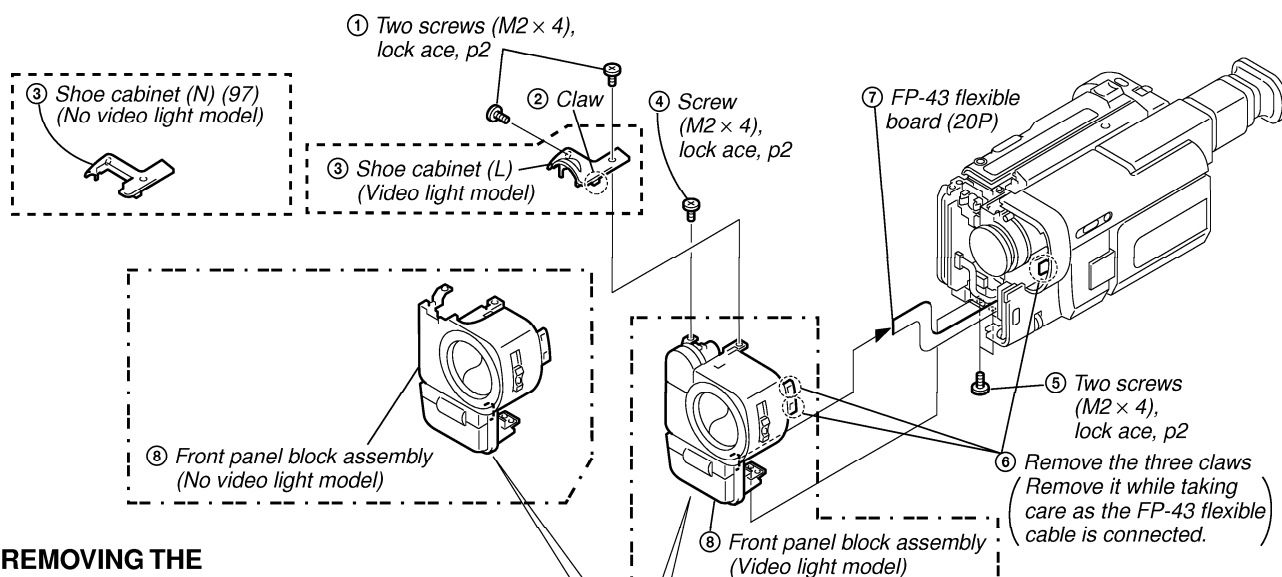
REMOVING THE LIQUID CRYSTAL DISPLAY PANEL



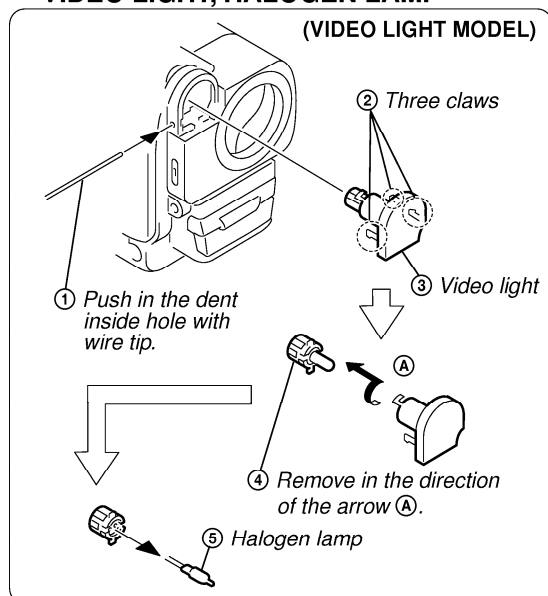
[PD-117 BOARD SERVICE POSITION]



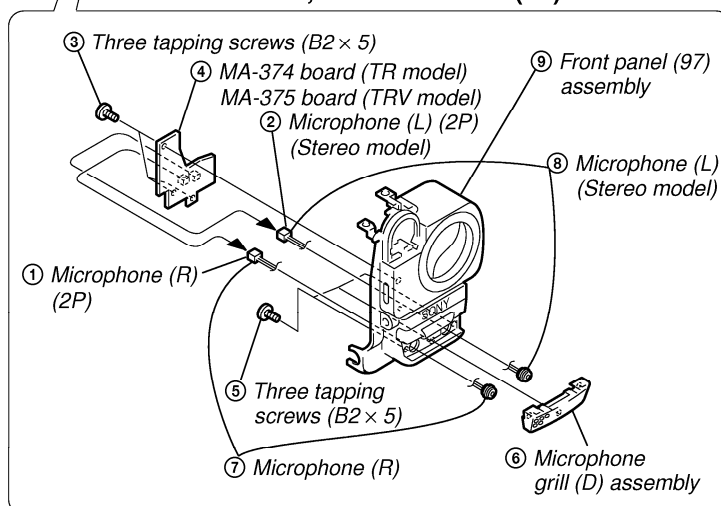
2-2. FRONT PANEL ASSEMBLY, MA-374/375 BOARD



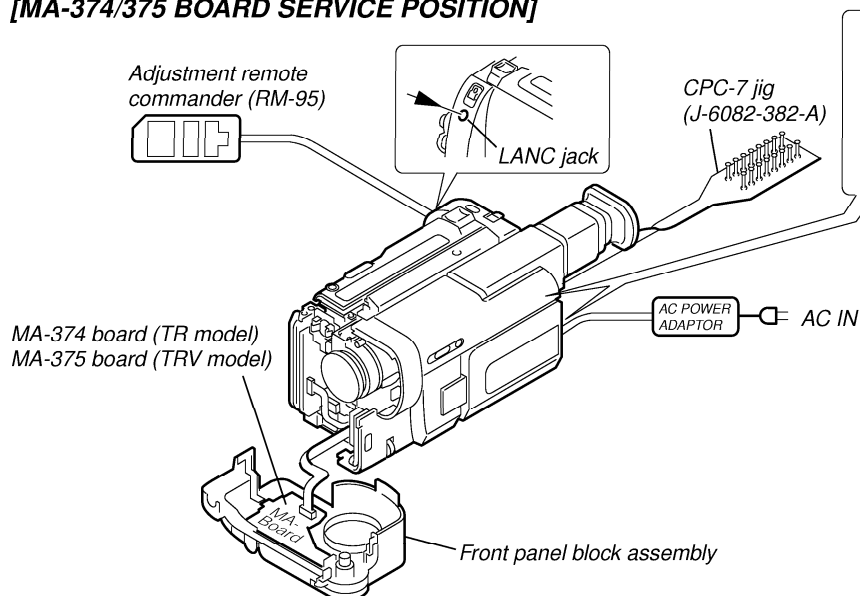
REMOVING THE VIDEO LIGHT, HALOGEN LAMP



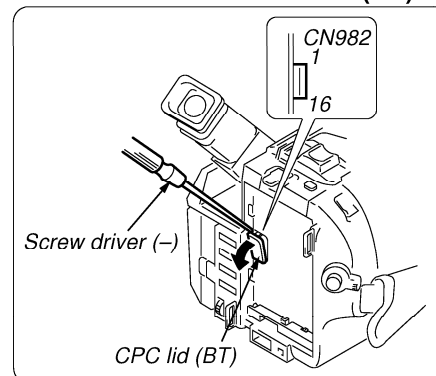
REMOVING THE MA-374/375 BOARD, MICROPHONE, FRONT PANEL (97) ASSEMBLY



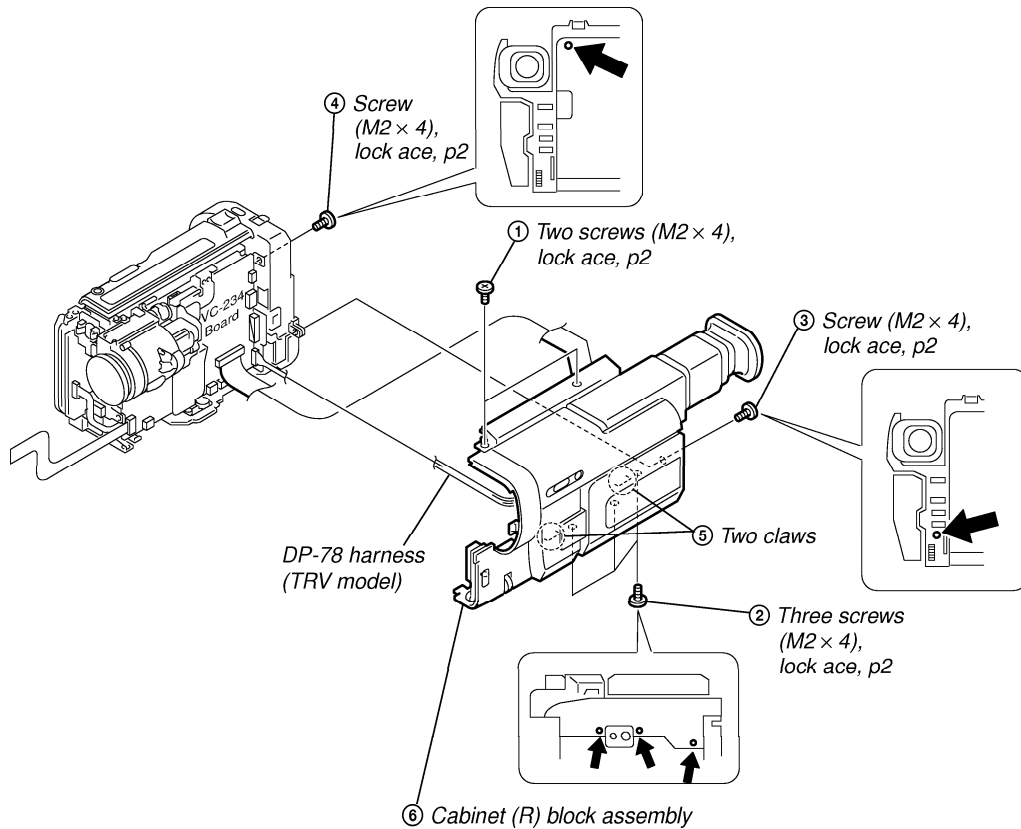
[MA-374/375 BOARD SERVICE POSITION]



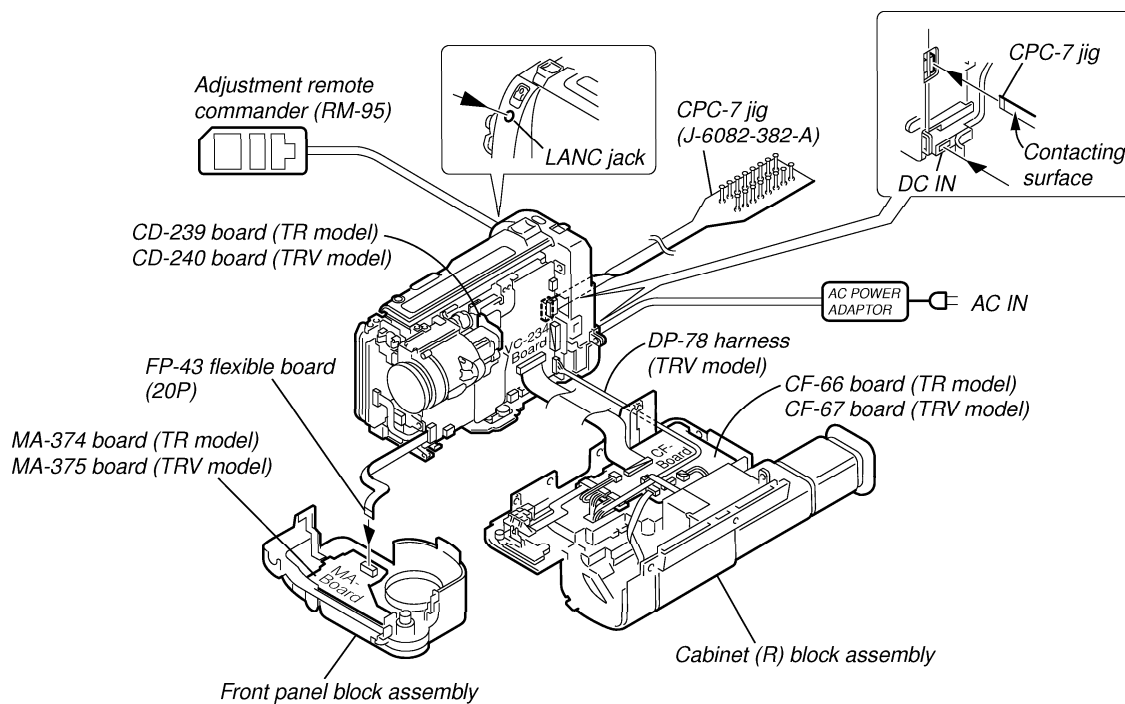
REMOVING THE CPC LID (BT)



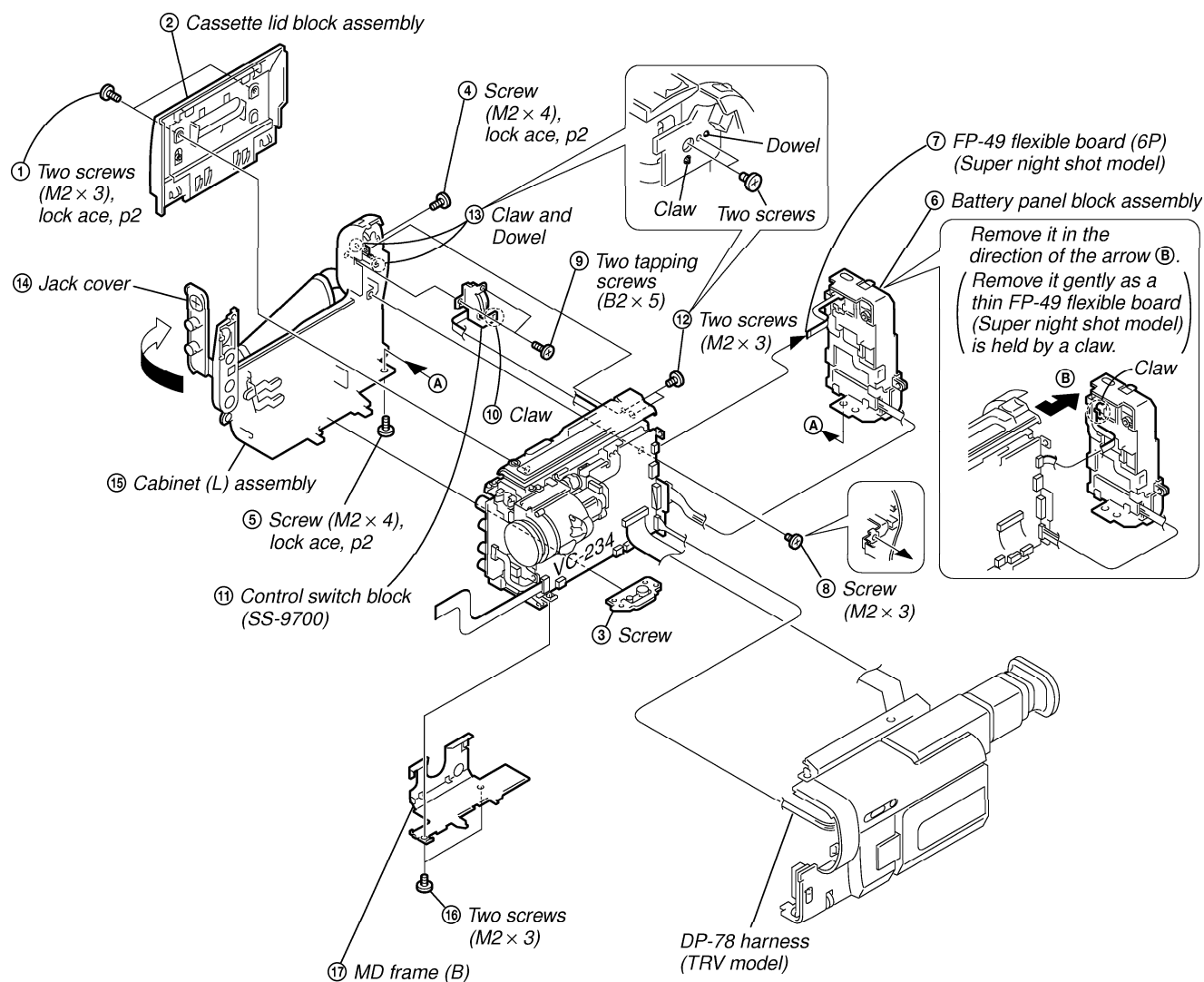
2-3. CABINET (R) BLOCK ASSEMBLY



[MA-374/375, CF-66/67, CD-239/240 BOARDS SERVICE POSITION]

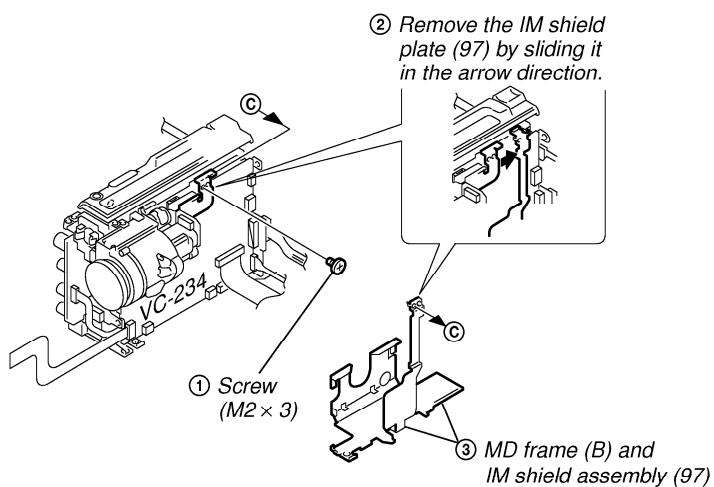


2-4. MECHANISM DECK-1



[AEP, EE, NE, RU, UK MODEL]

Remove the MD frame (B) and IM shield assembly (97) after completing step ⑩.

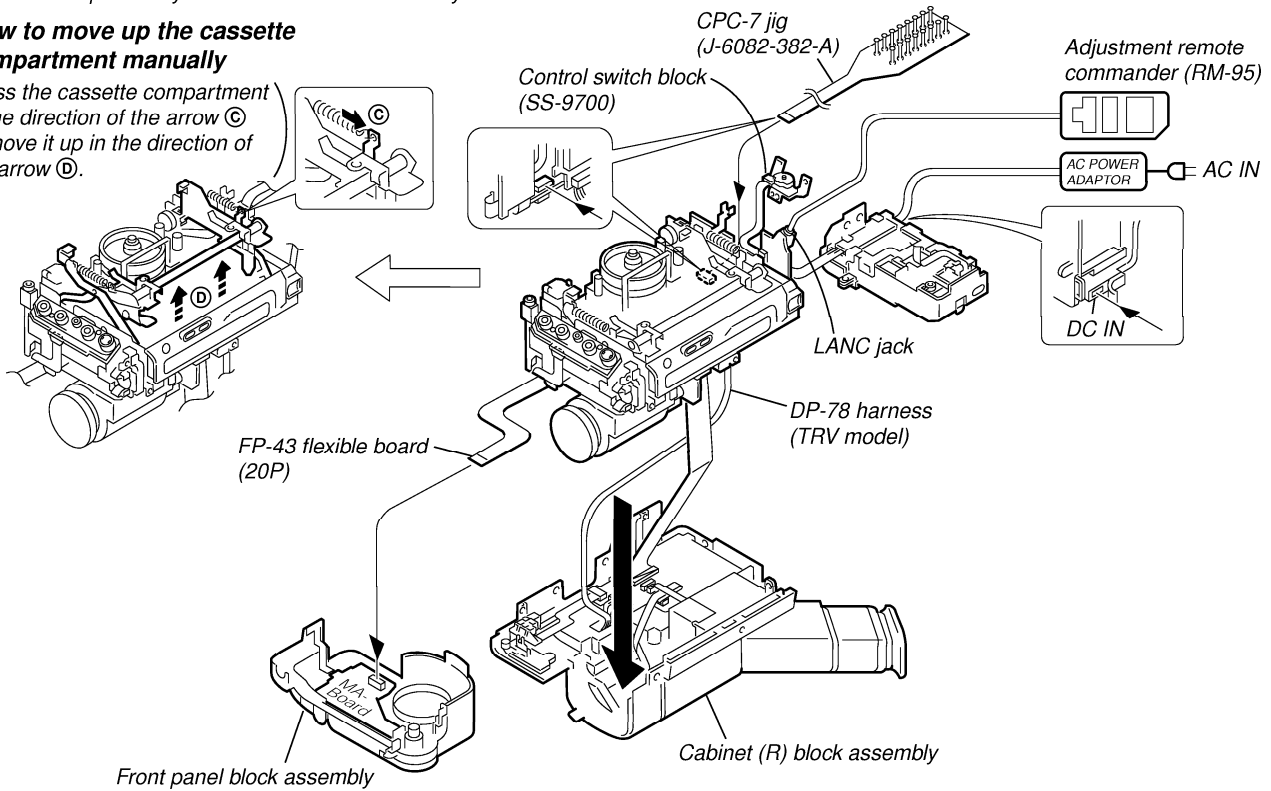


[MECHANISM DECK SERVICE POSITION-1]

Note: Use the parts only which can be removed easily from outside of the mechanism deck.

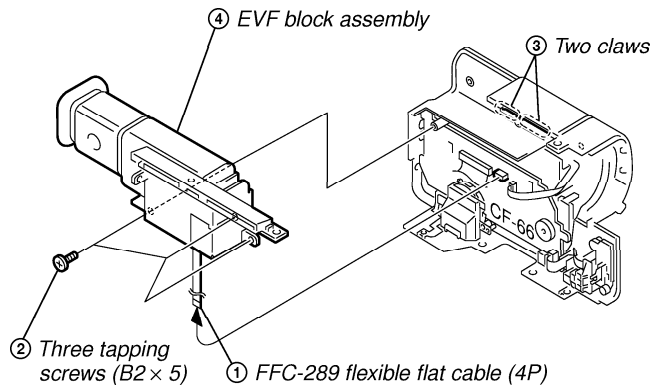
• How to move up the cassette compartment manually

(Press the cassette compartment in the direction of the arrow ㉓ to move it up in the direction of the arrow ㉔).

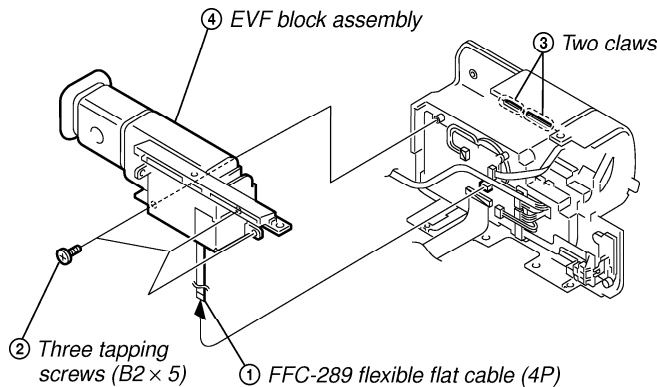


2-5. EVF BLOCK ASSEMBLY

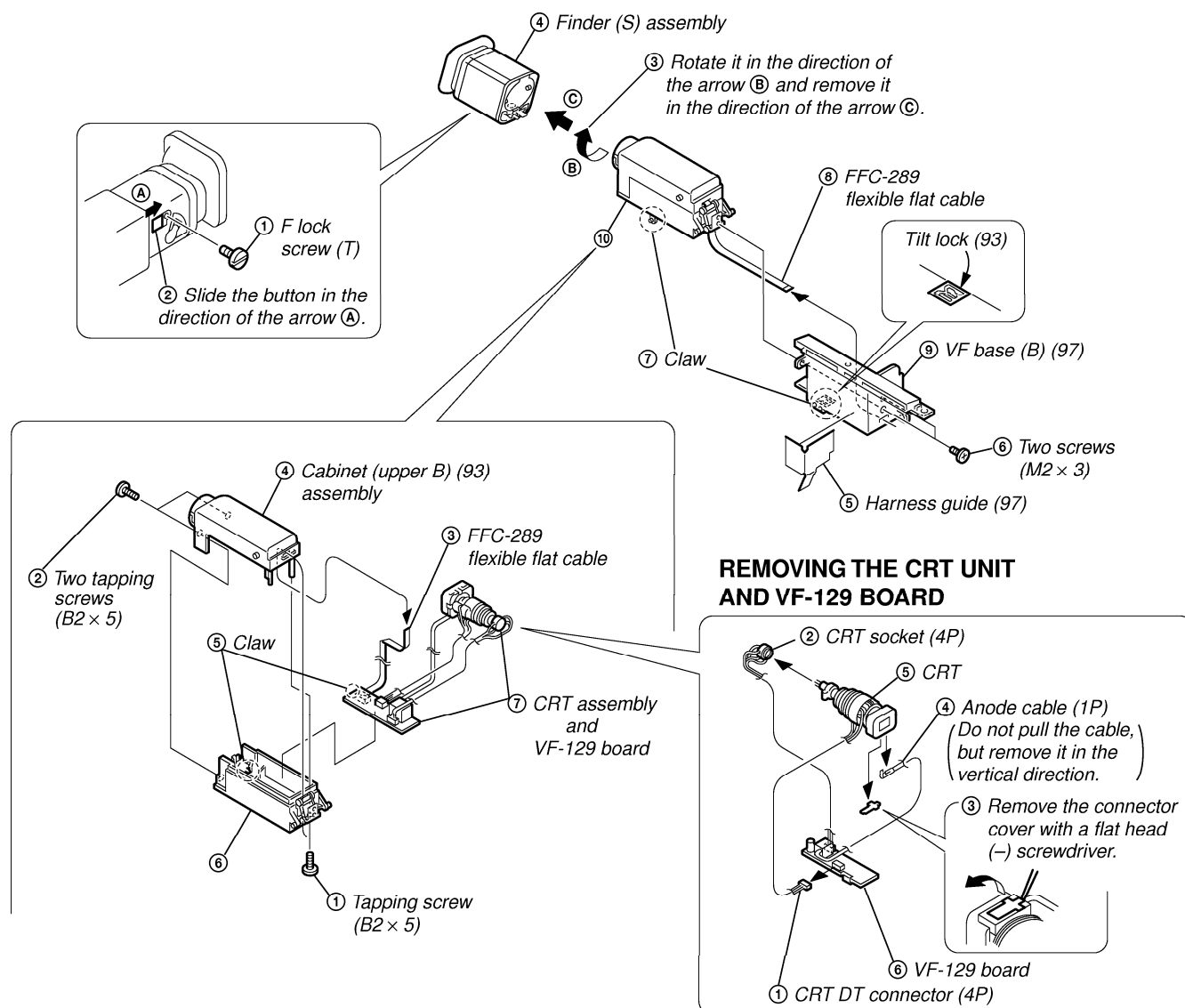
[TR MODEL]



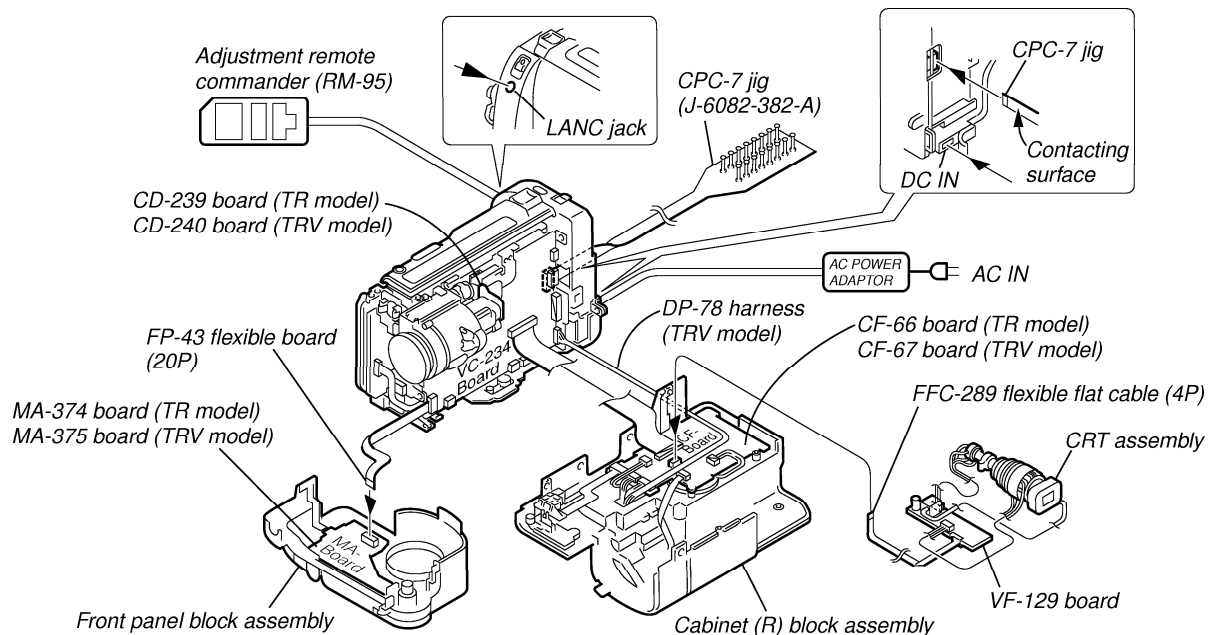
[TRV MODEL]



2-6. VF-129 BOARD

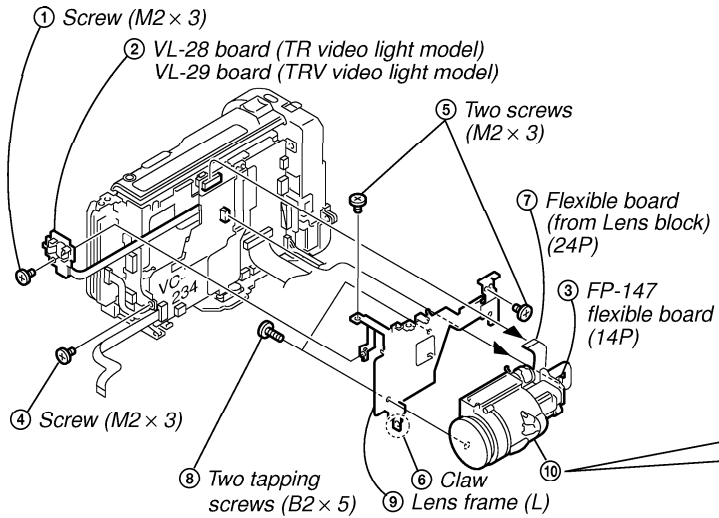


[VF-129, MA-374/375, CF-66/67, CD-239/240 BOARDS SERVICE POSITION]

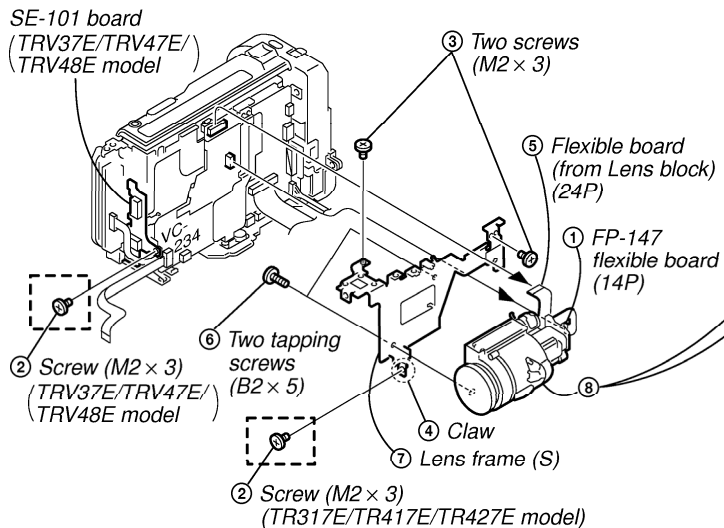


2-7. LENS DEVICE, CD-239/240 BOARD

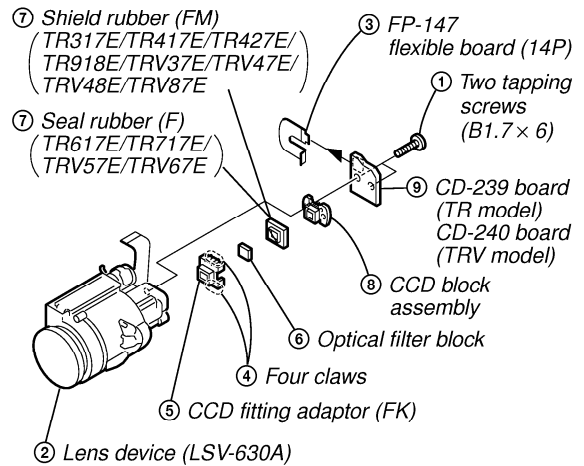
[VIDEO LIGHT MODEL]



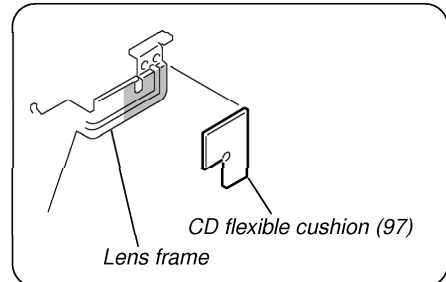
[NO VIDEO LIGHT MODEL]



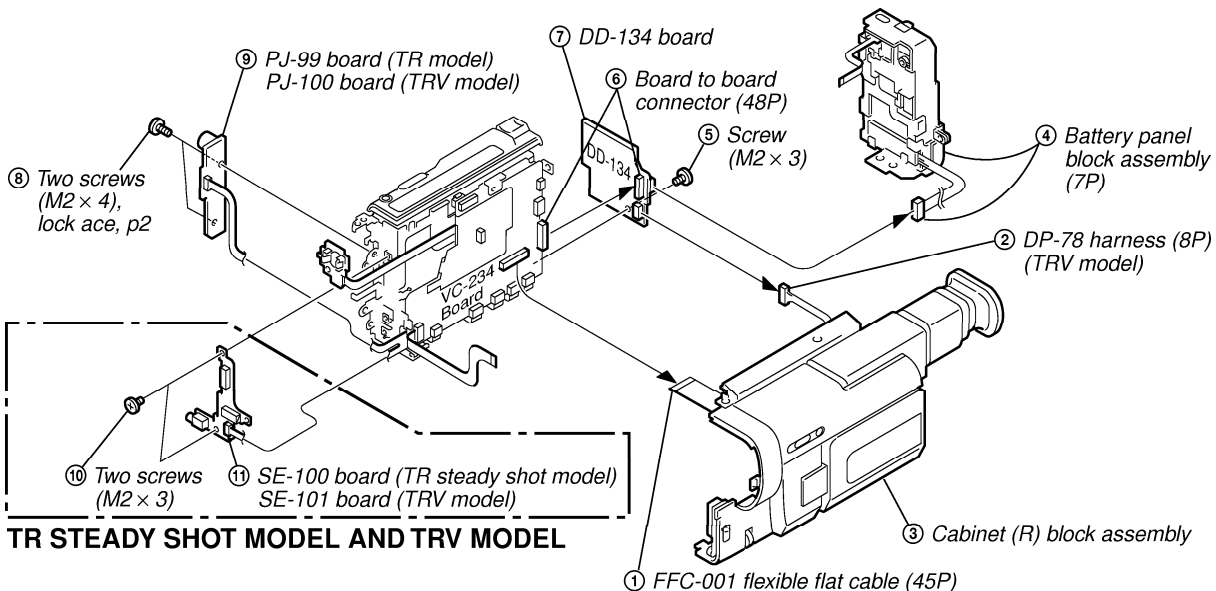
REMOVING THE LENS DEVICE, CD-239/240 BOARD



(PRECAUTION DURING INSTALLATION)

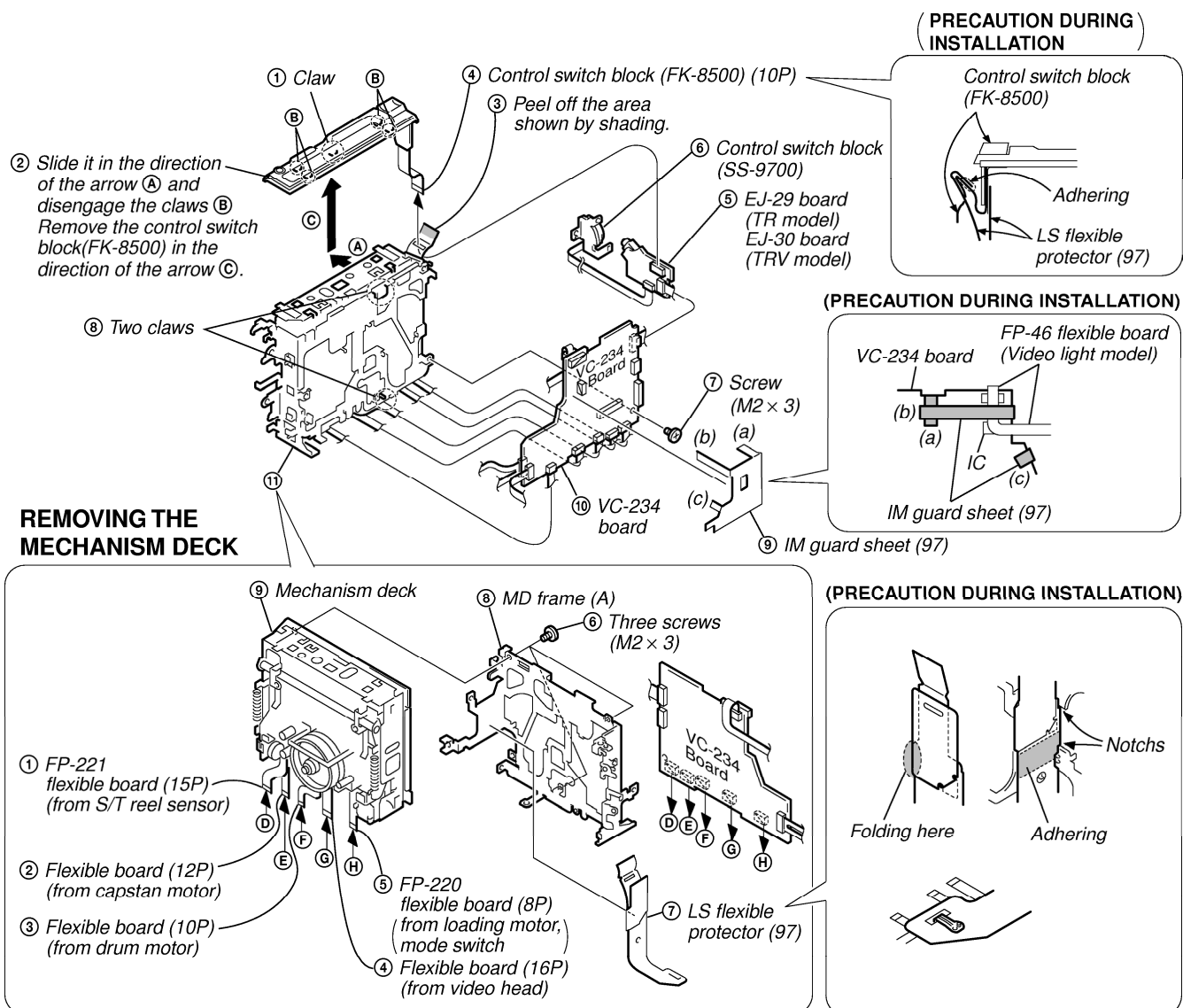


2-8. DD-134, PJ-99/100, SE-100/101 BOARDS

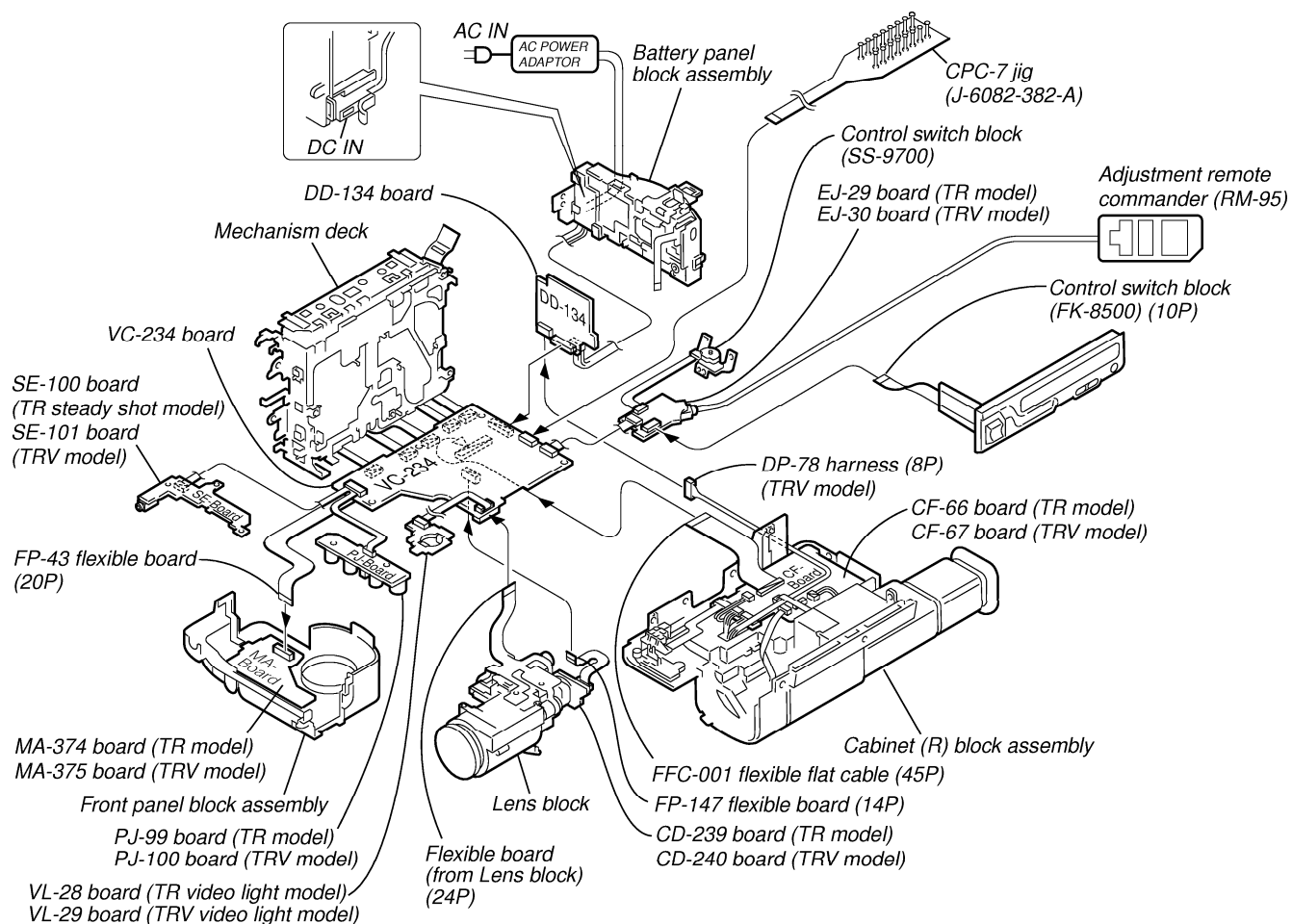


TR STEADY SHOT MODEL AND TRV MODEL

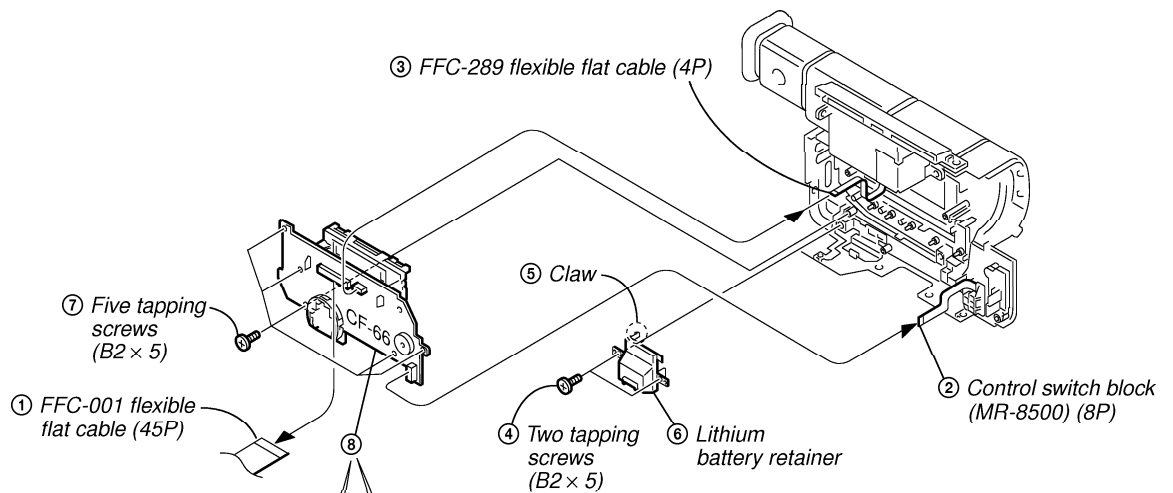
2-9. VC-234, EJ-29/30 BOARDS, MECHANISM DECK-2



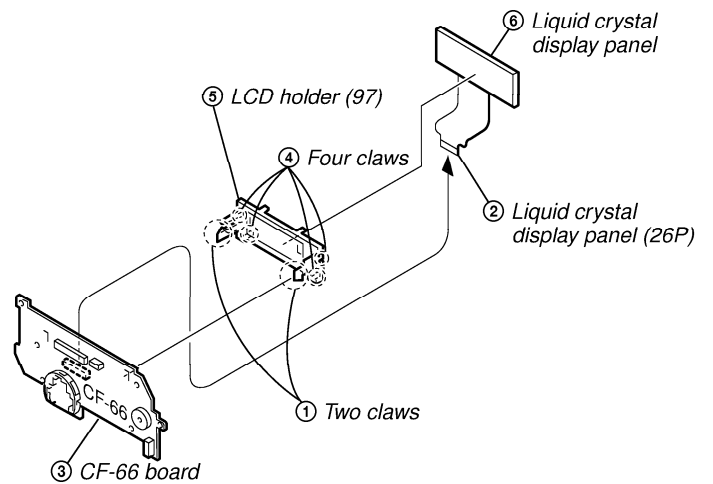
[CONNECTION DIAGRAM FOR SERVICE POSITION (Mainly for voltage measurement and check)]
(MA-374/375, CF-66/67, CD-239/240, VL-28/29, PJ-99/100, SE-100/101, EJ-29/30, DD-134, VC-234 BOARDS,)
(MECHANISM DECK-2)



2-10.CF-66 BOARD, LIQUID CRYSTAL DISPLAY PANEL, BACK LIGHT (TR MODEL)

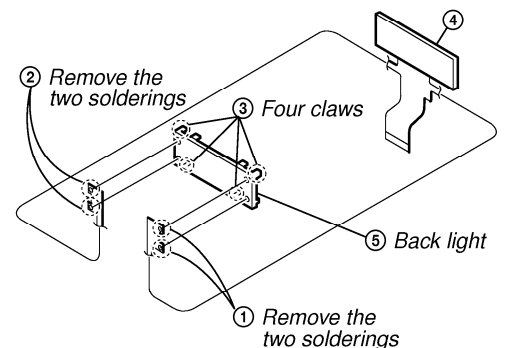


REMOVING THE LIQUID CRYSTAL DISPLAY PANEL (TR NIGHT SHOT MODEL)

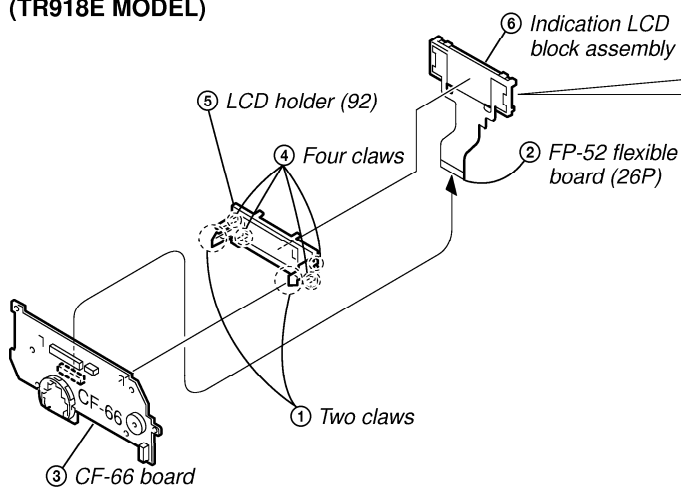


REMOVING THE BACK LIGHT

(TR918E MODEL)



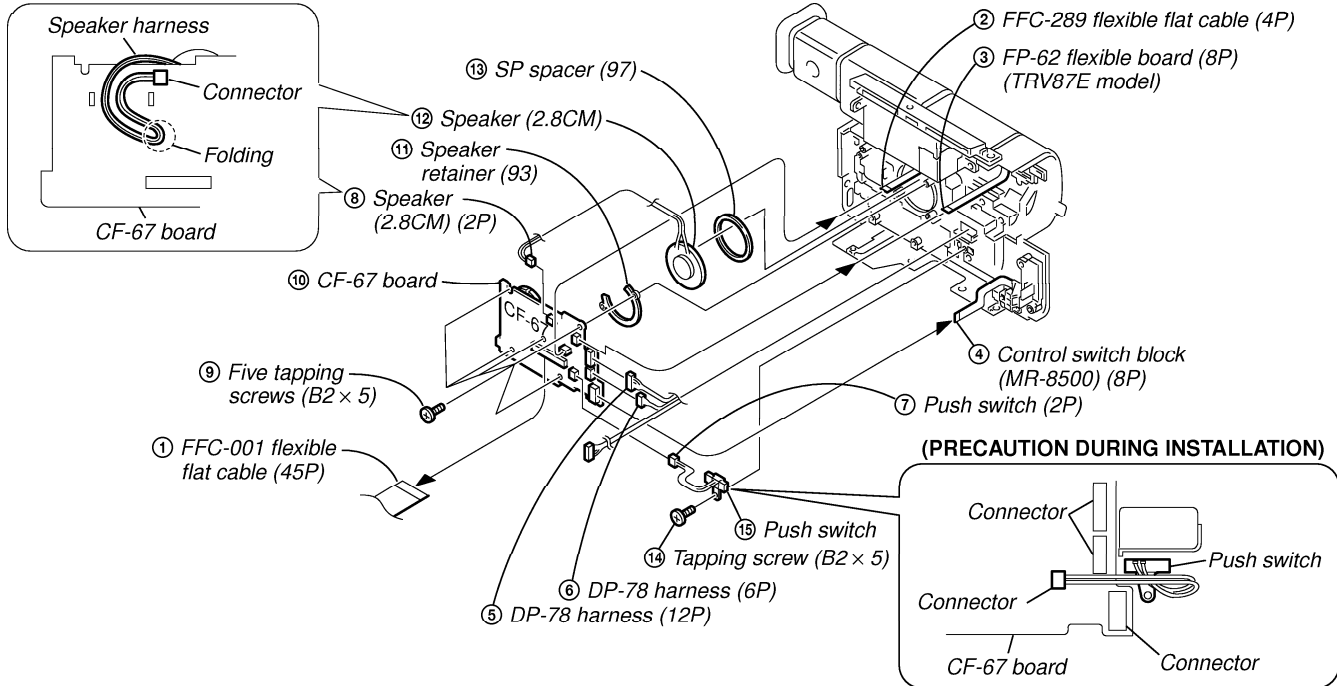
(TR918E MODEL)



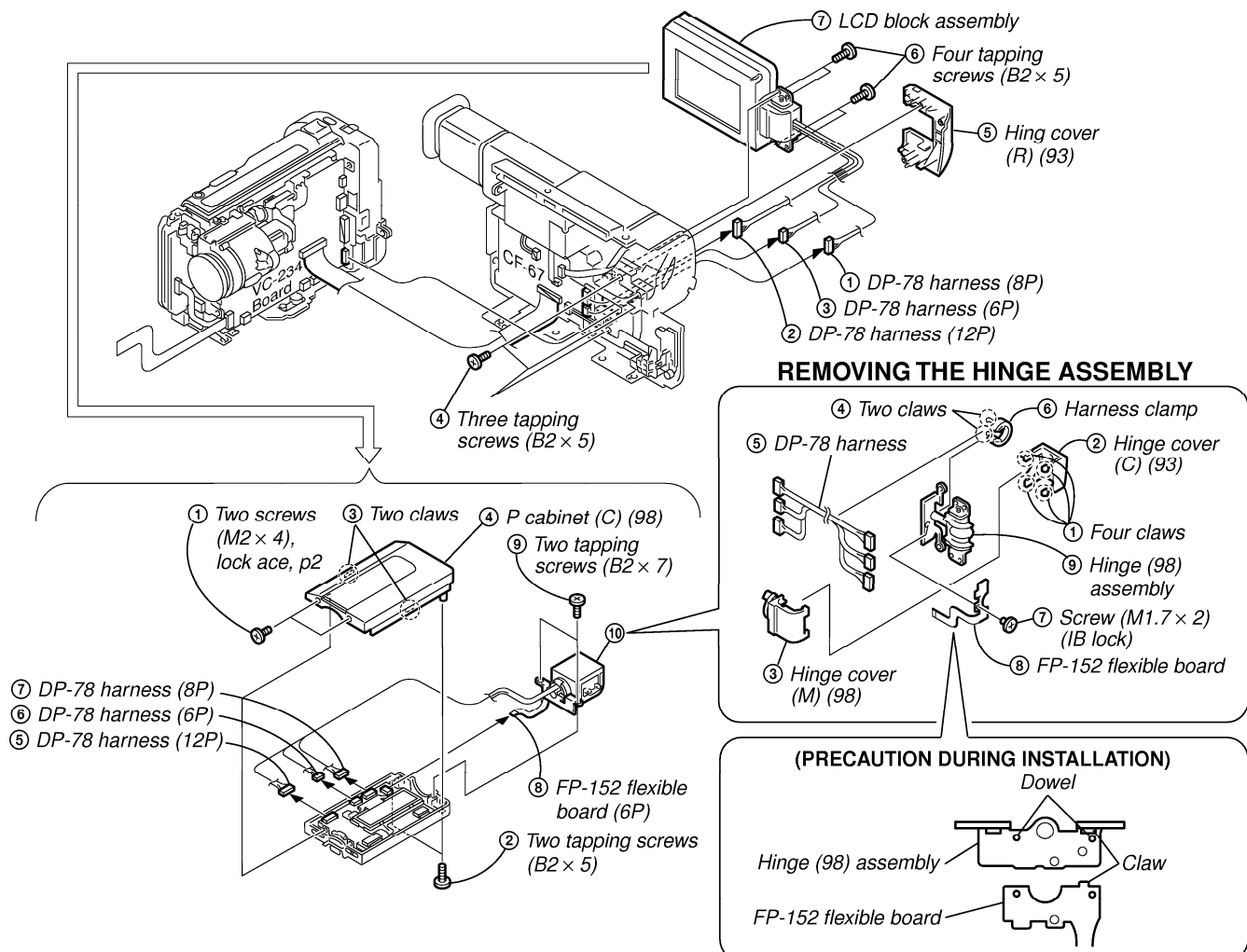
REMOVING THE INDICATION LCD BLOCK ASSEMBLY

2-11.CF-67 BOARD, SPEAKER, PUSH SWITCH (TRV MODEL)

(PRECAUTION DURING INSTALLATION)



2-12.LCD BLOCK ASSEMBLY, HINGE ASSEMBLY (TRV MODEL)

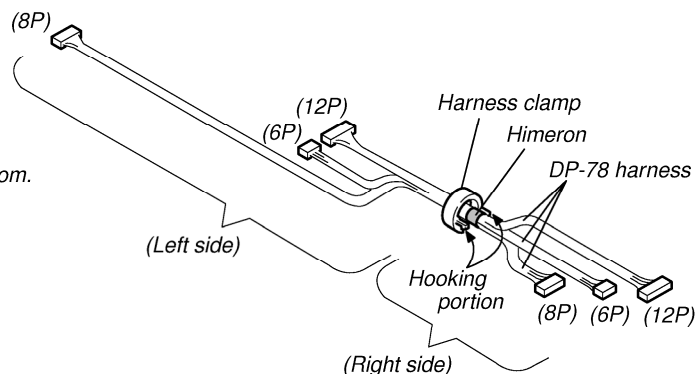


2-13.HARNESS PROCESSING OF THE HINGE ASSEMBLY (TRV MODEL)

[ASSEMBLING THE HARNESS CLAMP]

Attach the harness clamp to the DP-78 harness.

- Place a longer harness to the left side.
- Place the shortest harness (8P) in the right side to the bottom.
- Place the hooking portion of the harness clamp to the right side.
- Place the harness clamp in the left of the tie band himeron that ties the three wires.
- Insert the DP-78 harness in the internal groove of the harness clamp.

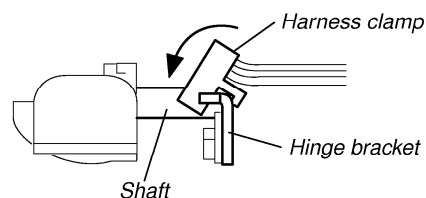


[INSTALLING THE HARNESS CLAMP]

Hook the two claws of the harness clamp on the hinge bracket. Then attach it to the shaft of the hinge assembly.

Note:

- The harness must not be pinched.
- The sheet of the FP-152 flexible board must not be peeled over.



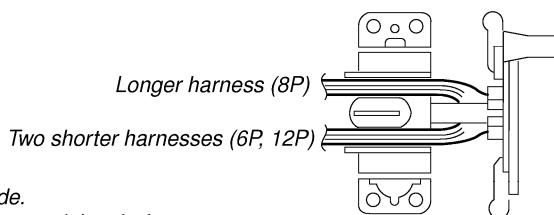
[HARNESS PROCESSING]

Fix the harness using the harness guide of the hinge assembly.

- While holding the harness clamp, turn the hinge upside down.
- While being careful not to twist the harness, insert the longer harness (8P) into the shallow groove and insert the other harnesses (6P, 12P) to the deeper groove.

Note:

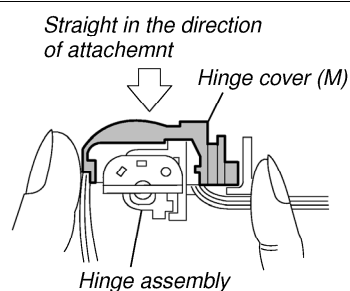
- Be sure that the harnesses do not climb over the three ribs of the guide.
- Be sure that the harnesses are not pinched between the harness clamp and the shaft.



[ATTACHING THE HINGE COVER (M)]

Attach the hinge cover (M) to the hinge assembly.

- Hold the harness so that the harness must not come out from the groove.
- Be careful so that the hinge cover (M) must not contact with the switch of the FP-152 flexible board.



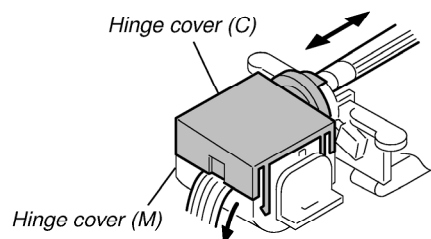
[ATTACHING THE HINGE COVER (C)]

Attach the hinge cover (C) to the hinge cover (M).

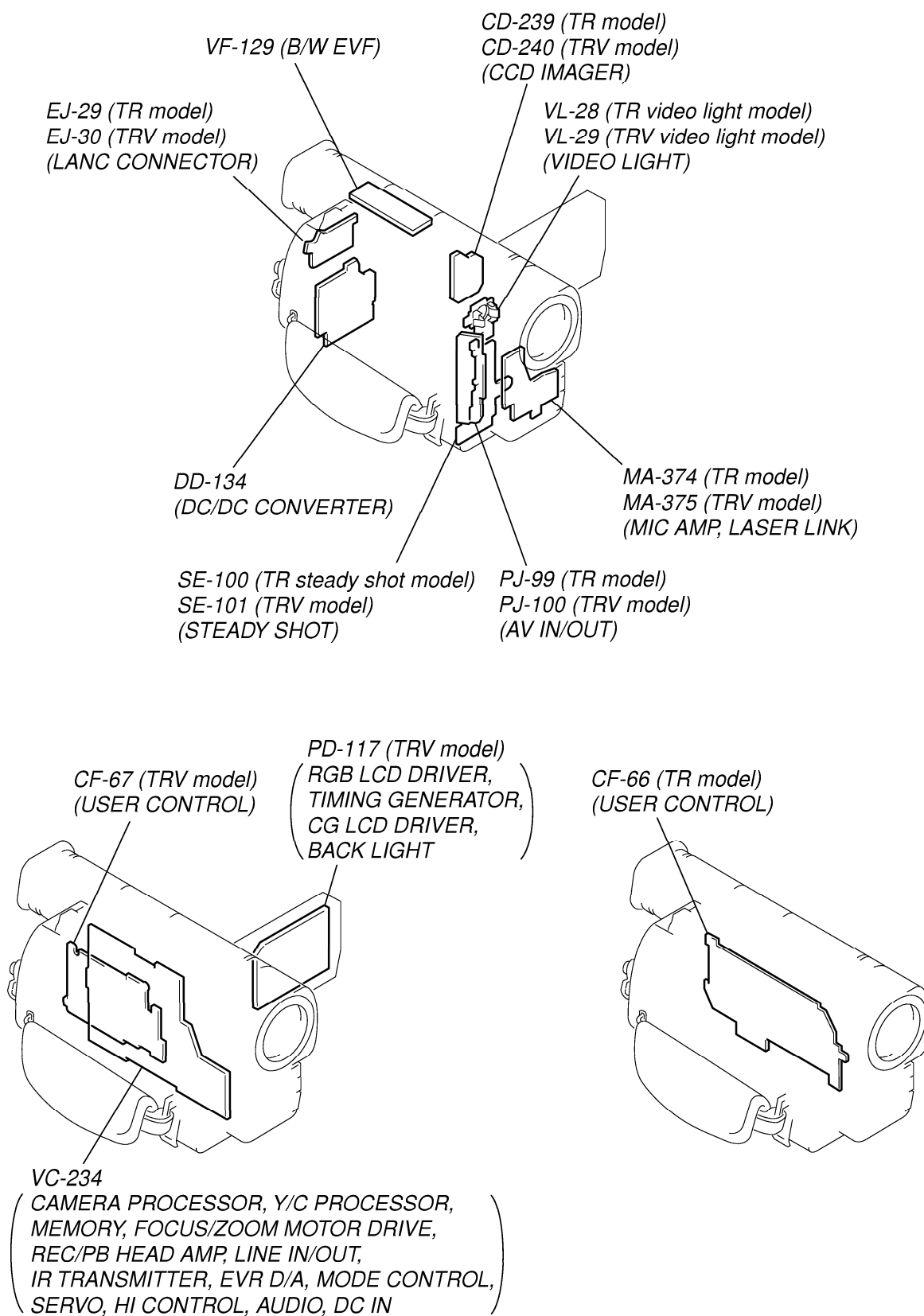
- While holding the hinge cover (M) so as not to be dropped, turn the hinge cover (C) upside down.
- Route the harness inside the cutout of the hinge cover (M).
- Attach the hinge cover (C) straight. (Claw hooks at the four positions.)
- Make an attempt to move the harness gently at the entrance/exit of the hinge assembly to make sure that the harness can move.

Note:

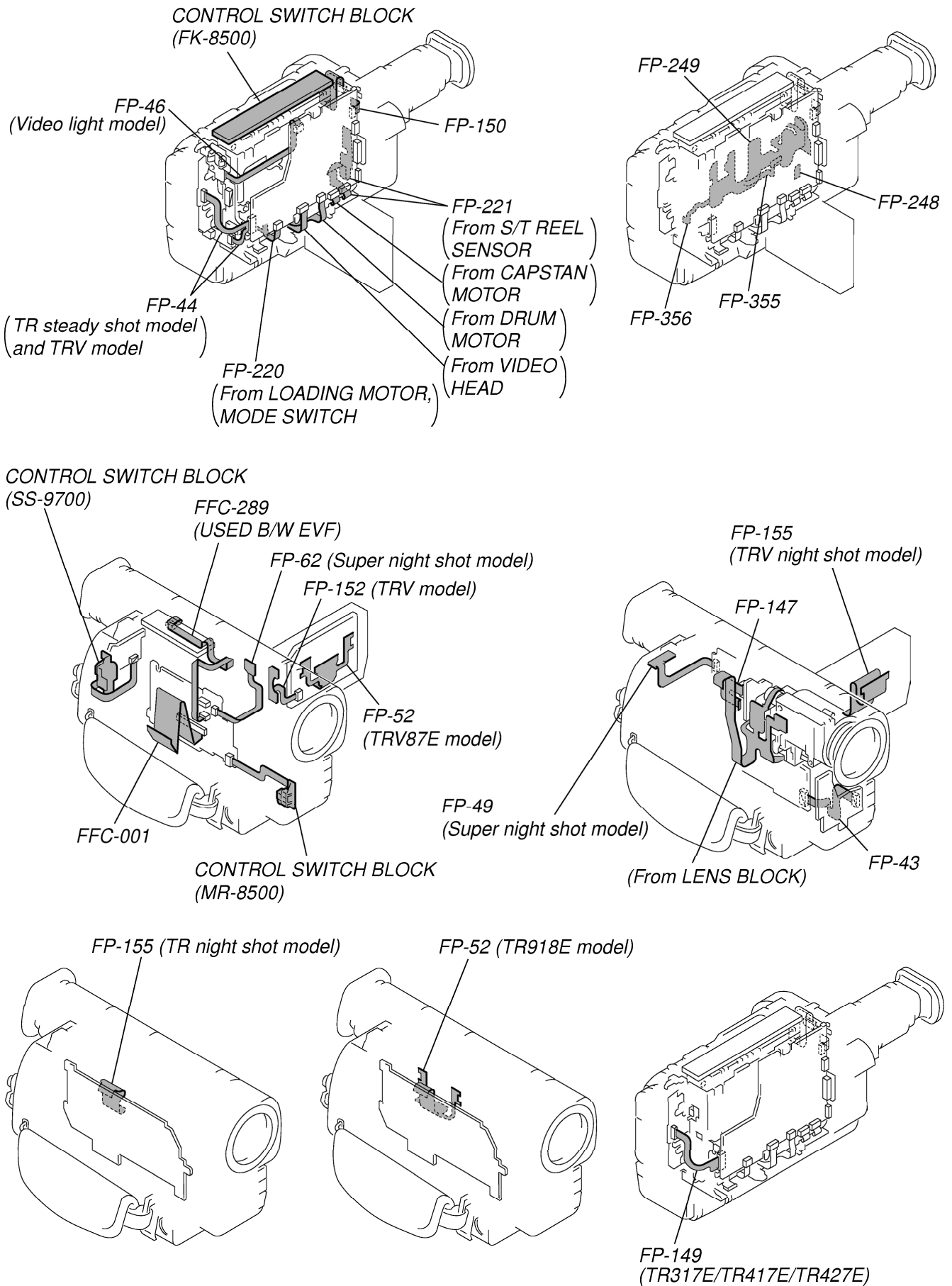
- Be sure that the harness is not pinched by the hinge cover.
- Be sure that the harness can move at the entrance/exit of the hinge assembly.



2-14.CIRCUIT BOARDS LOCATION



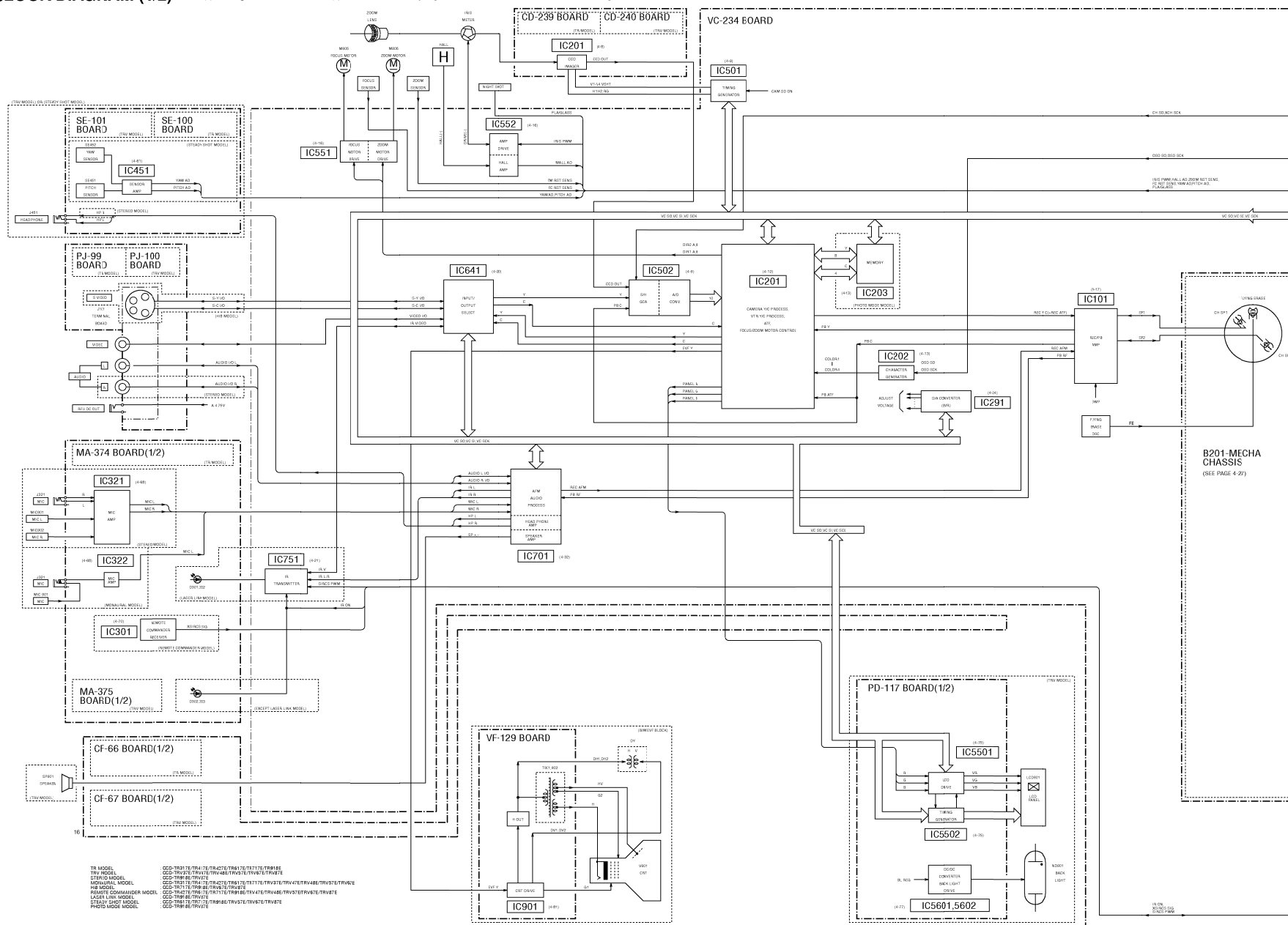
2-15.FLEXIBLE BOARDS LOCATION



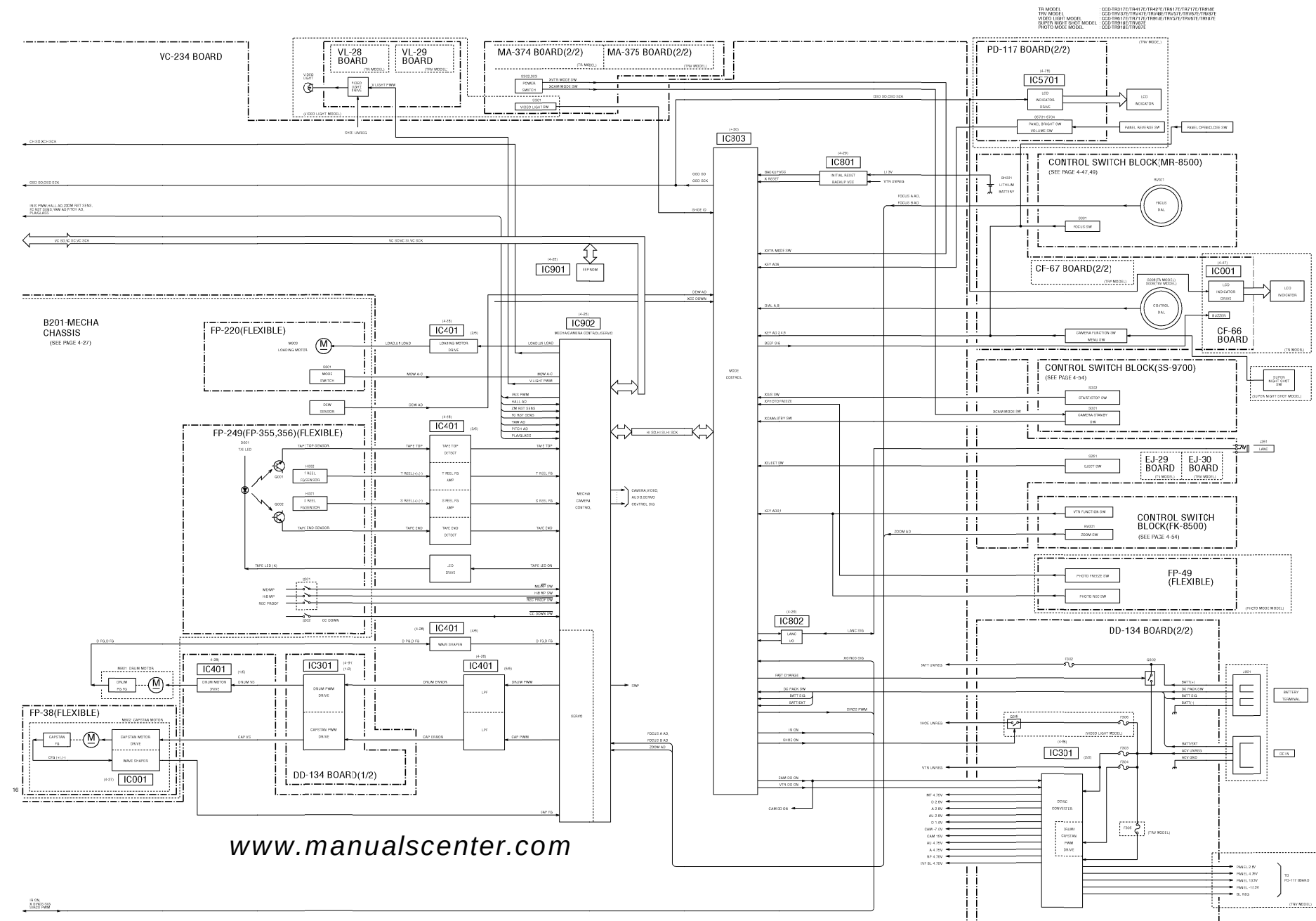
SECTION 3

BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/2) () : Page No. shown in () indicates the page to refer on the schematic diagram.



3-2. OVERALL BLOCK DIAGRAM (2/2) () : Page No. shown in () indicates the page to refer on the schematic diagram.

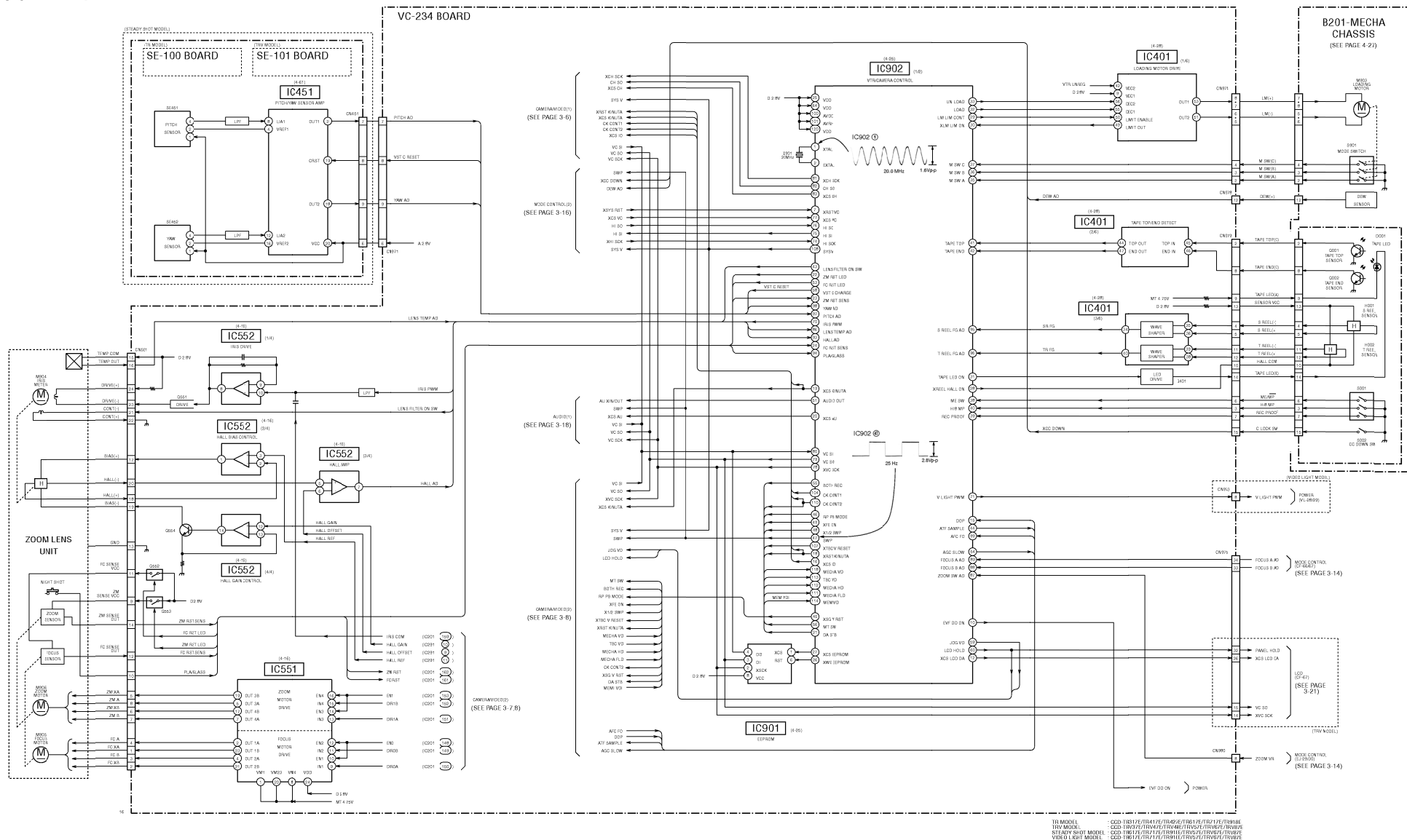


() : Page No. shown in () indicates the page to refer on the schematic diagram.

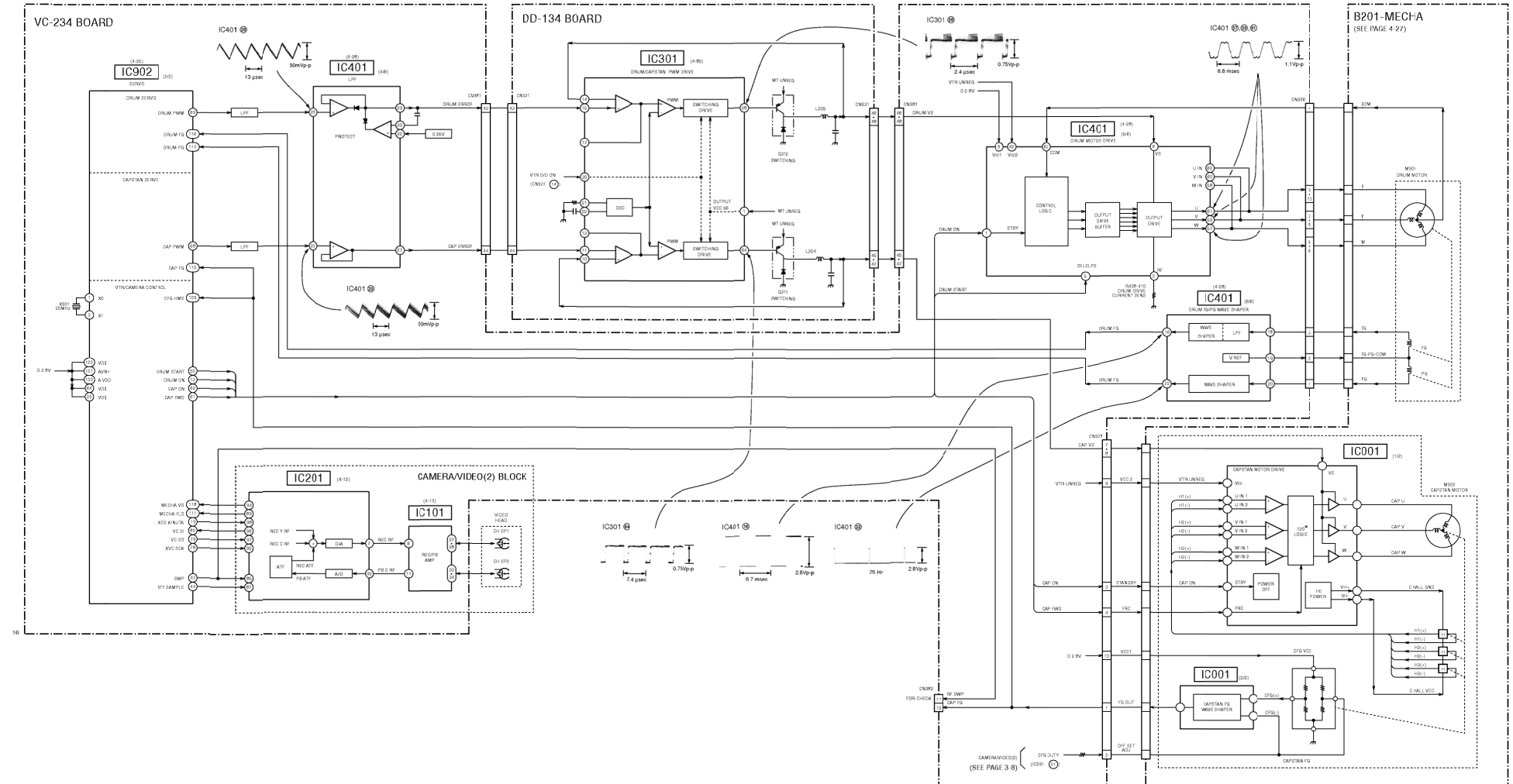


3-4. CAMERA/VIDEO BLOCK DIAGRAM (2/2)

3-5. VTR/CAMERA CONTROL BLOCK DIAGRAM () : Page No. shown in () indicates the page to refer on the schematic diagram.

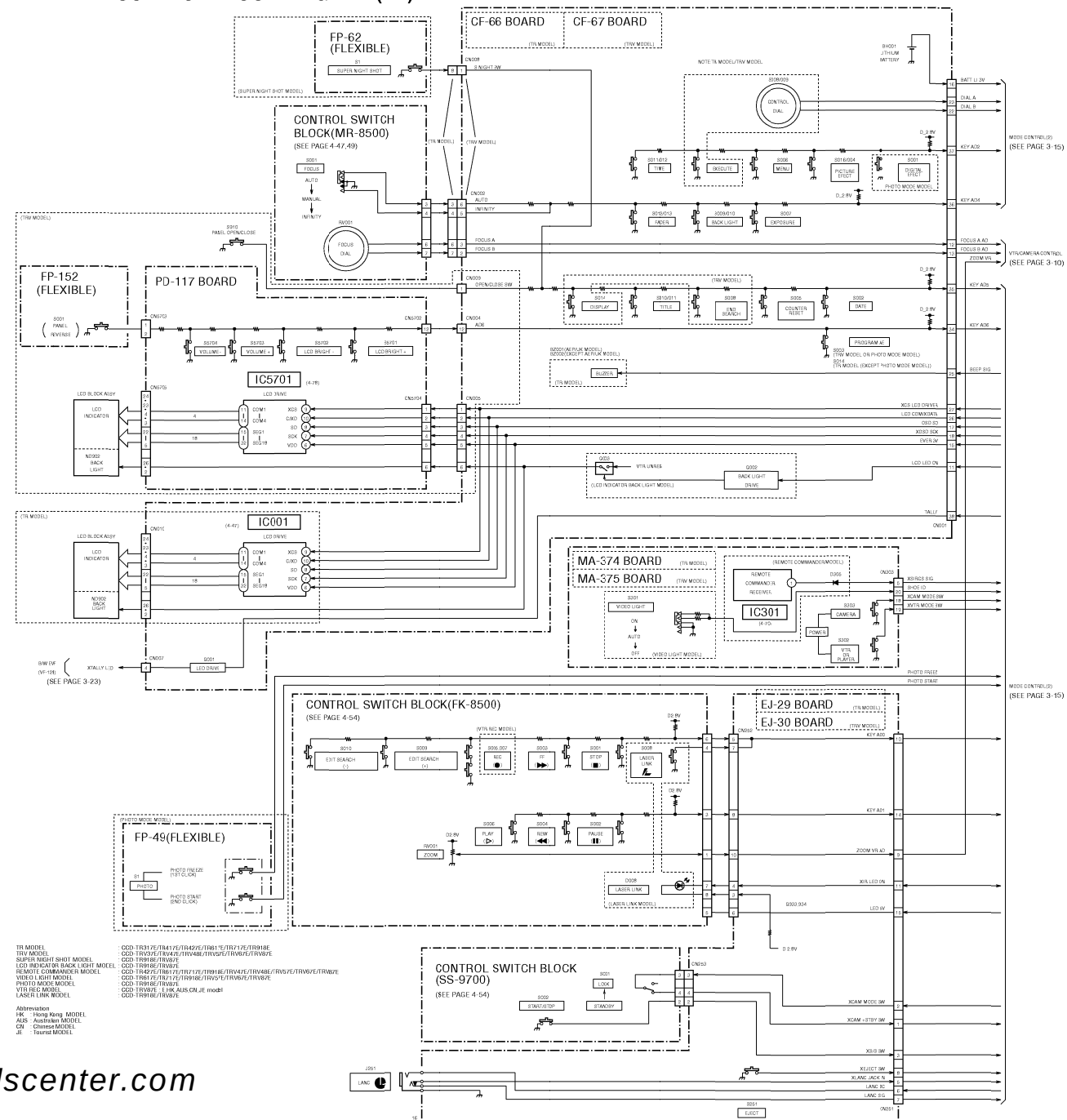


3-6. SERVO BLOCK DIAGRAM () : Page No. shown in () indicates the page to refer on the schematic diagram.



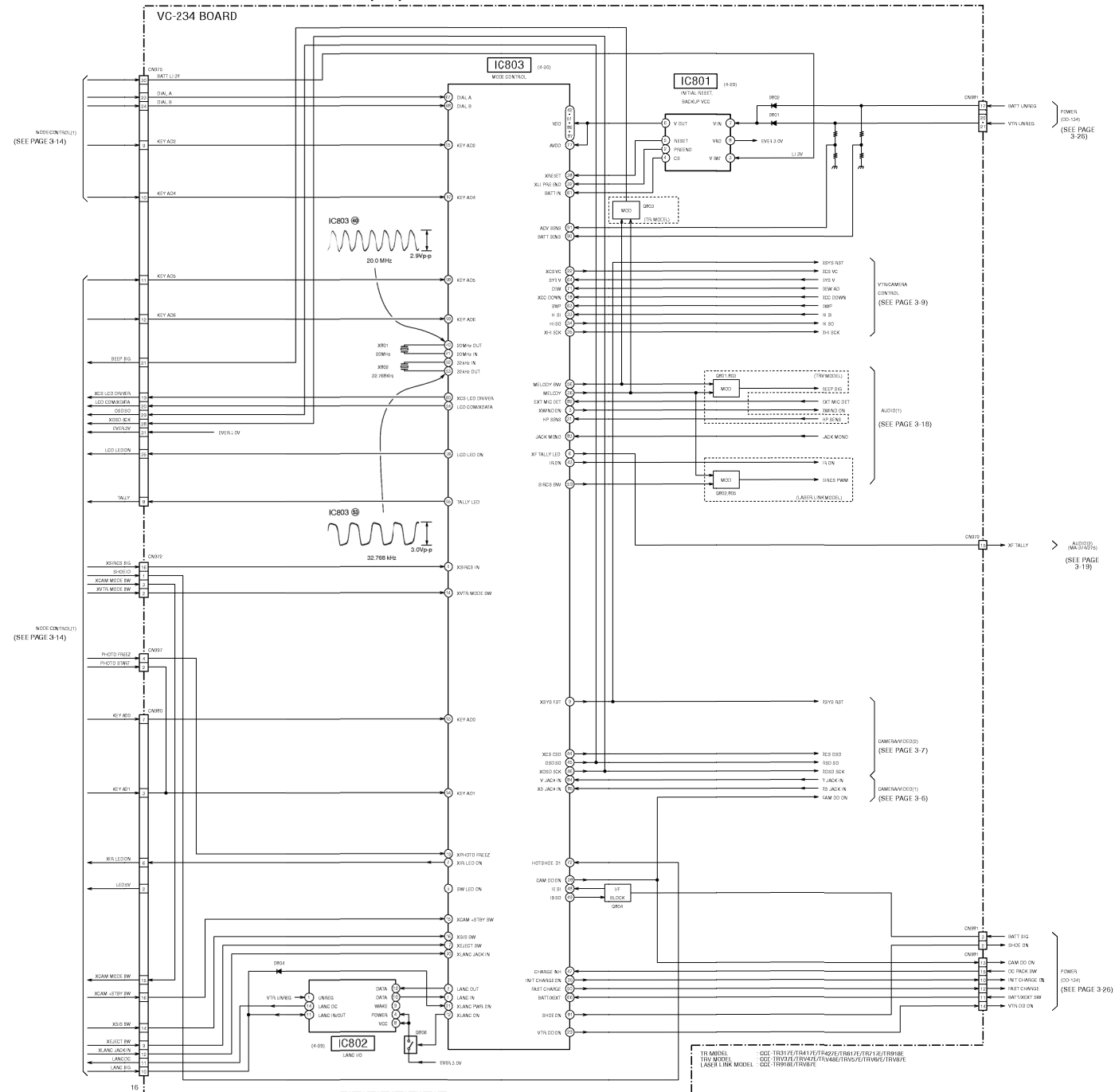
3-7. MODE CONTROL BLOCK DIAGRAM (1/2)

() : Page No. shown in () indicates the page to refer on the schematic diagram.



3-8. MODE CONTROL BLOCK DIAGRAM (2/2)

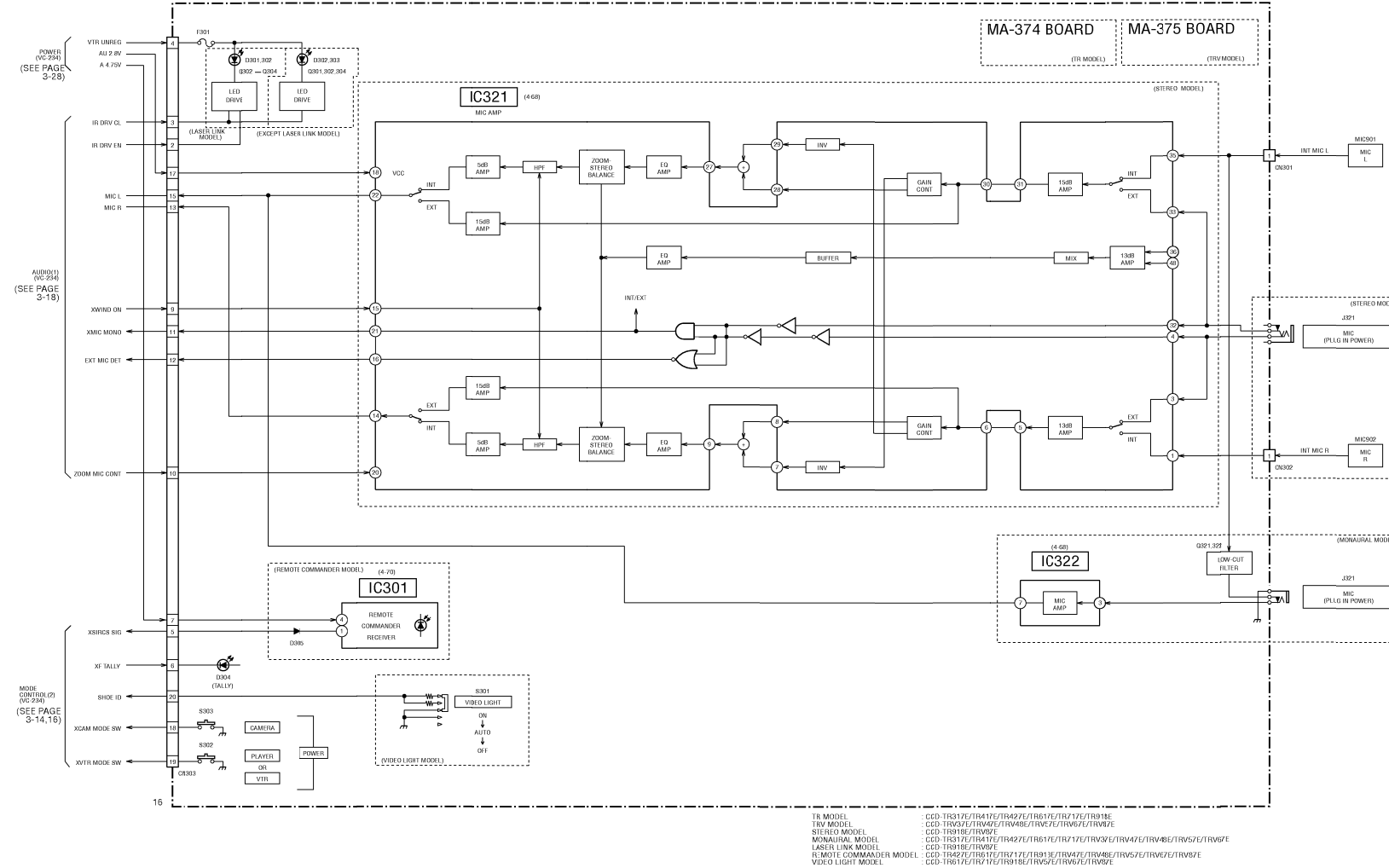
() : Page No. shown in () indicates the page to refer on the schematic diagram.





3-10. AUDIO BLOCK DIAGRAM (2/2)

() : Page No. shown in () indicates the page to refer on the schematic diagram.

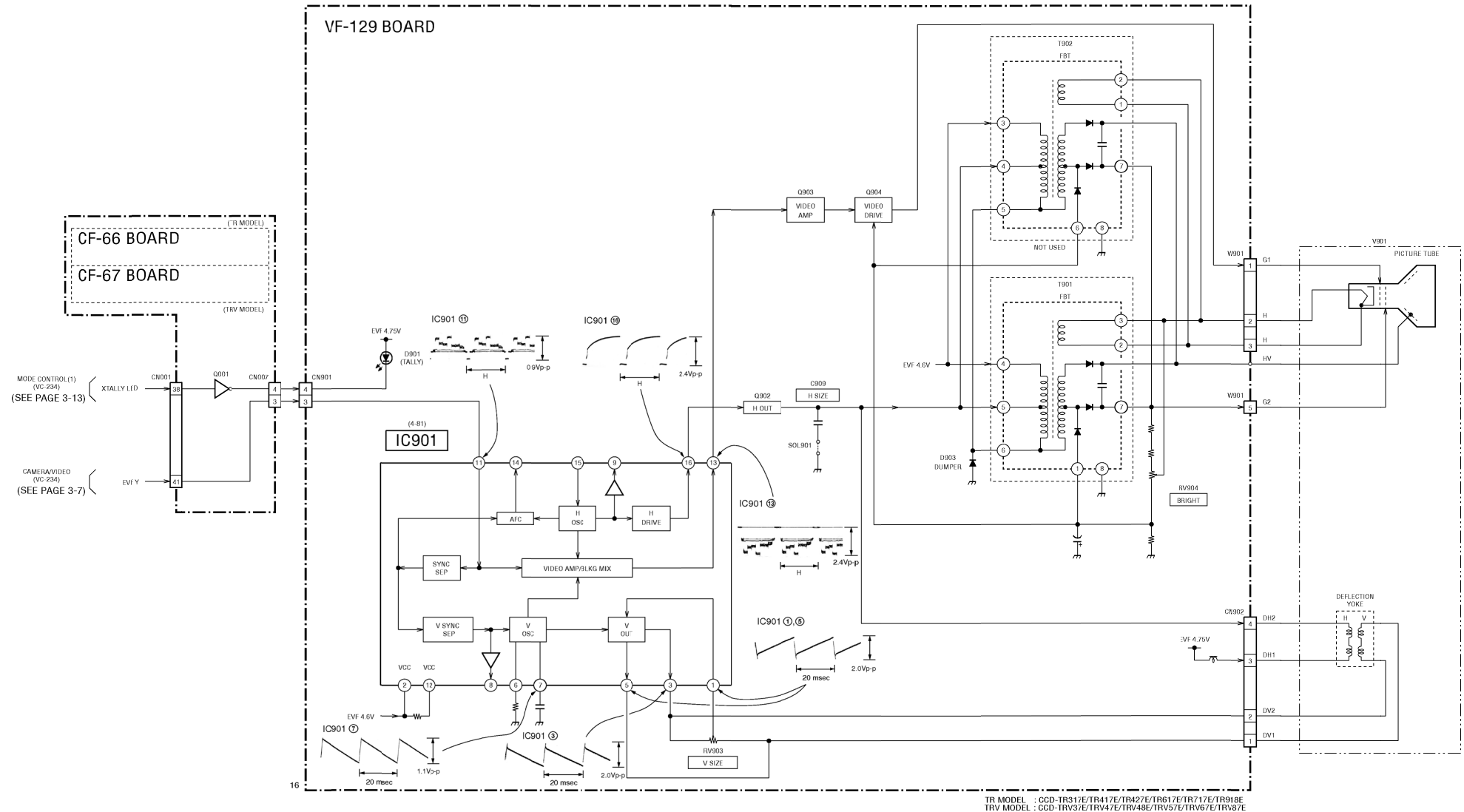


3-11.LCD BLOCK DIAGRAM (TRV MODEL)

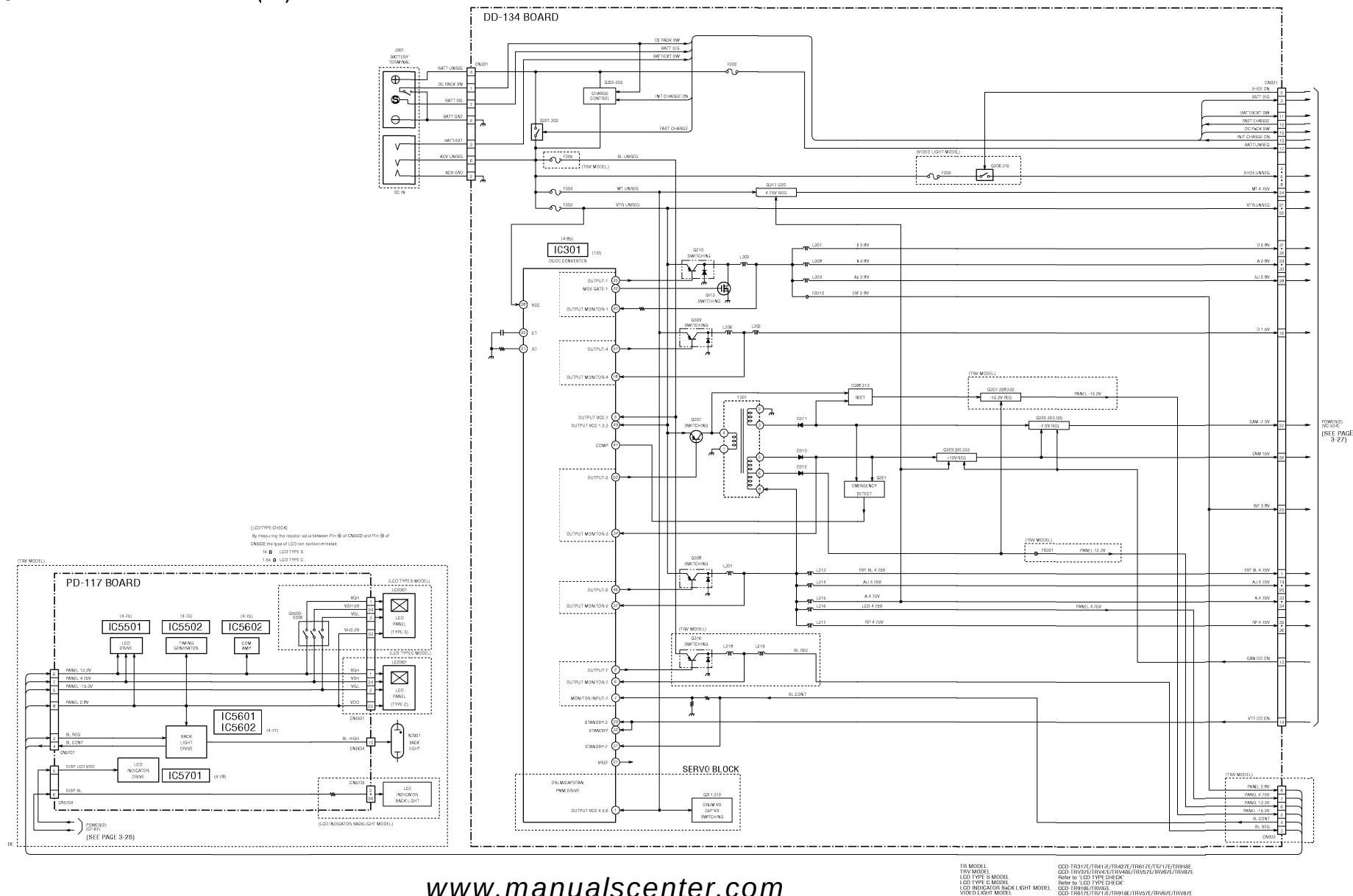


3-12. EVF BLOCK DIAGRAM

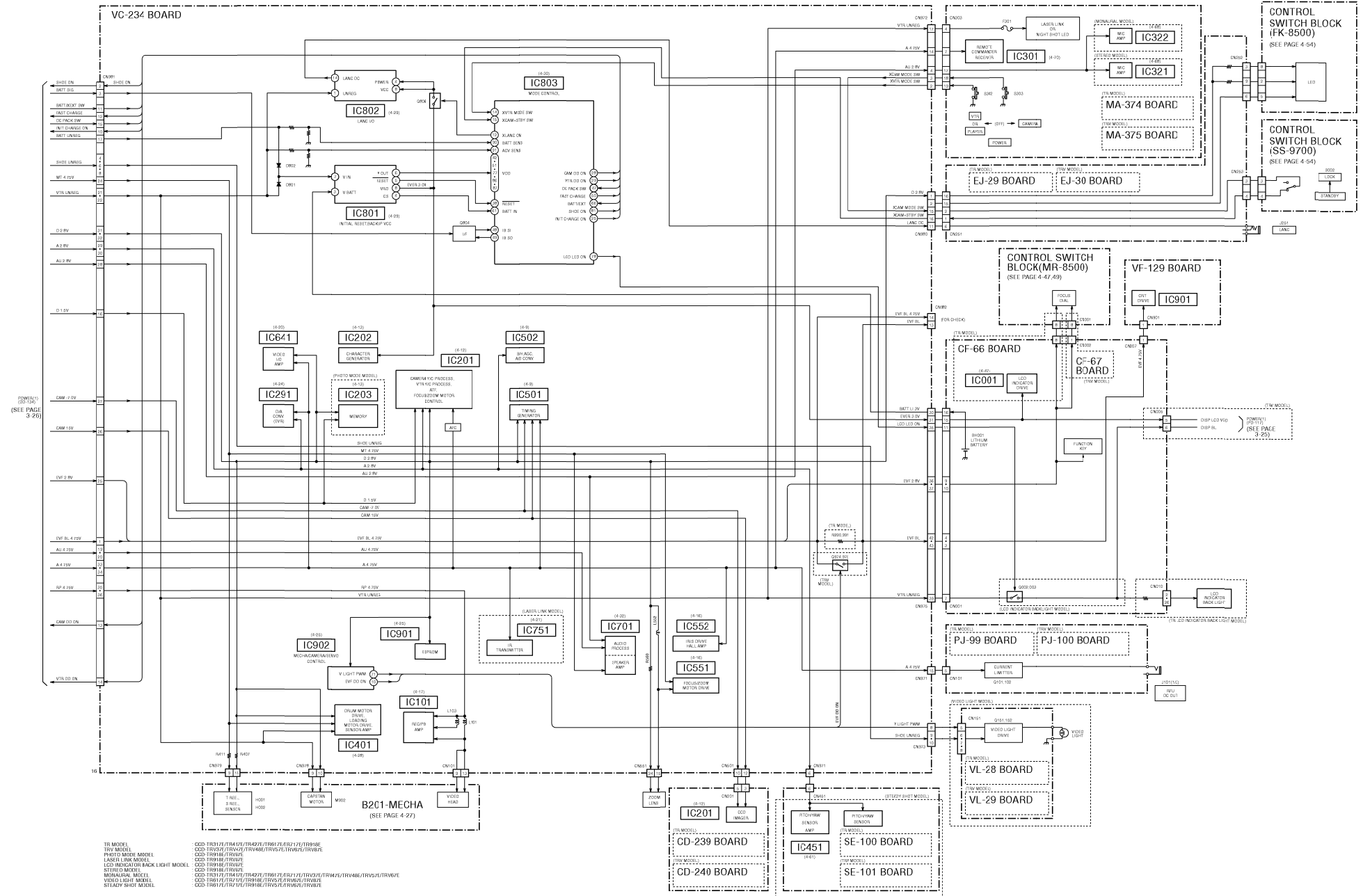
() : Page No. shown in () indicates the page to refer on the schematic diagram.



3-13. POWER BLOCK DIAGRAM (1/2) () : Page No. shown in () indicates the page to refer on the schematic diagram.



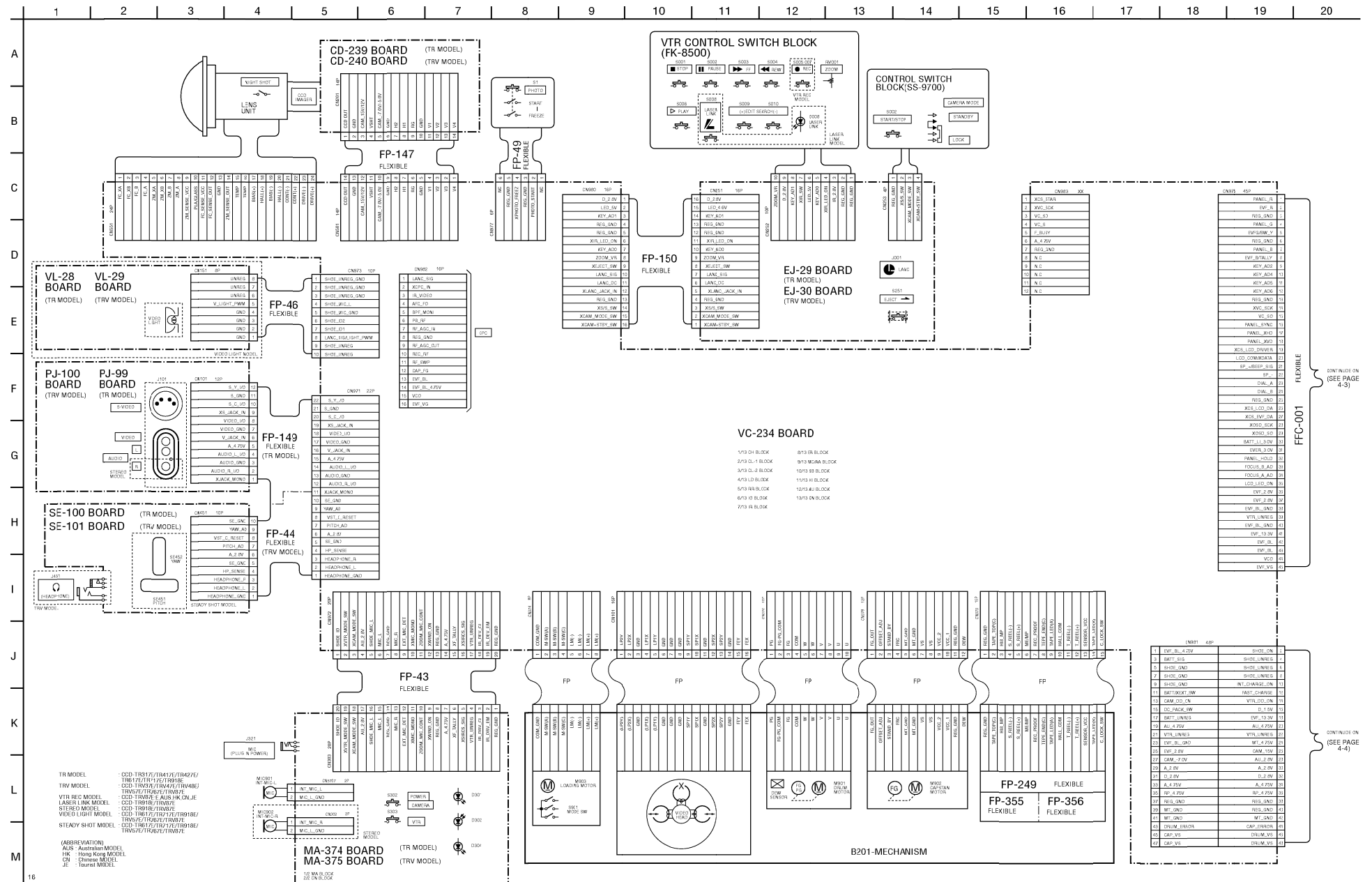
3-14. POWER BLOCK DIAGRAM (2/2) () : Page No. shown in () indicates the page to refer on the schematic diagram.



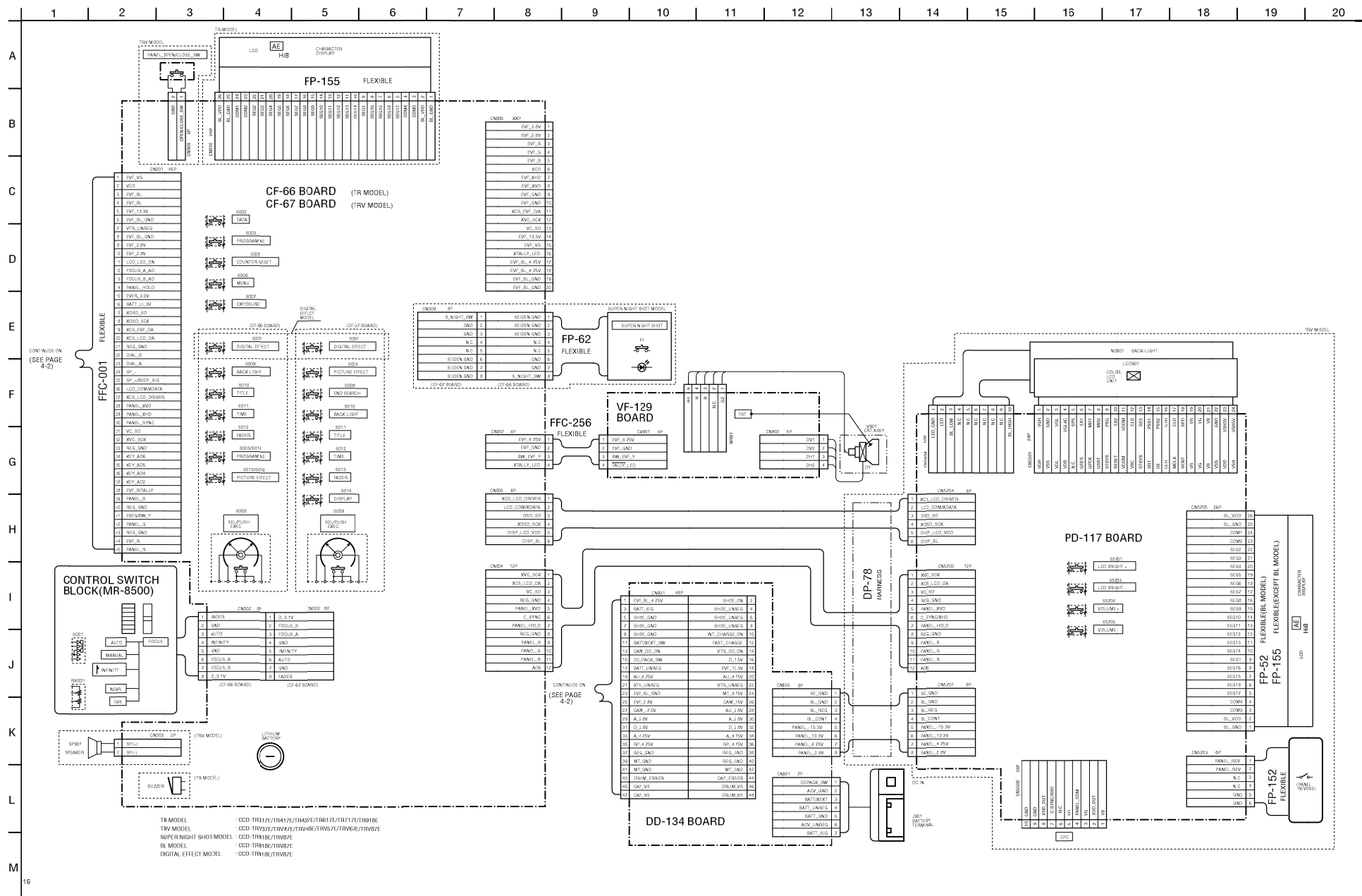
SECTION 4 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

4-1. FRAME SCHEMATIC DIAGRAM (1/2)



FRAME SCHEMATIC DIAGRAM (2/2)

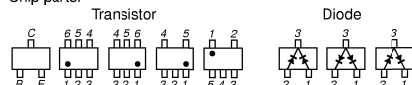


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

- Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.

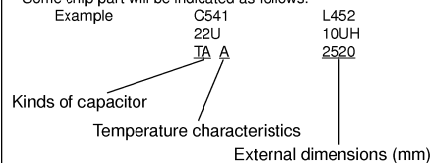


Model

TR model: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/
TR918E
TRV model: CCD-TRV37E/TRV47E/TRV48E/TRV57E/
TRV67E/TRV87E

(For schematic diagrams)

- All capacitors are in mF unless otherwise noted. pF : mF. 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted.
kW=1000W, MW=1000kW.
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.



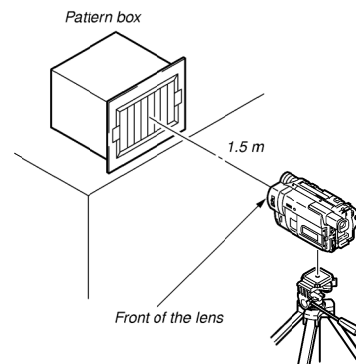
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
XEDIT → EDIT PB/XREC → PB/REC
- non flammable resistor
- fusible resistor
- panel designation
- B+ Line *
- B- Line *
- IN/OUT direction of (+, -) B LINE. *
- adjustment for repair. *
- Circled numbers refer to waveforms. *

Note : The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. *
- (VOM of DC 10 M Ω input impedance is used.).
- Voltage values change depending upon input impedance of VOM used. *

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

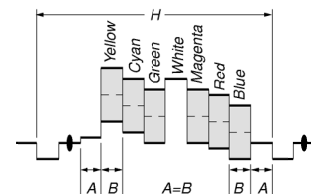


Fig. a (Video output terminal output waveform)

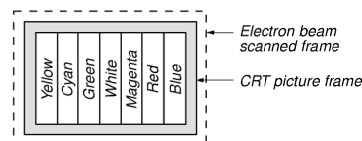


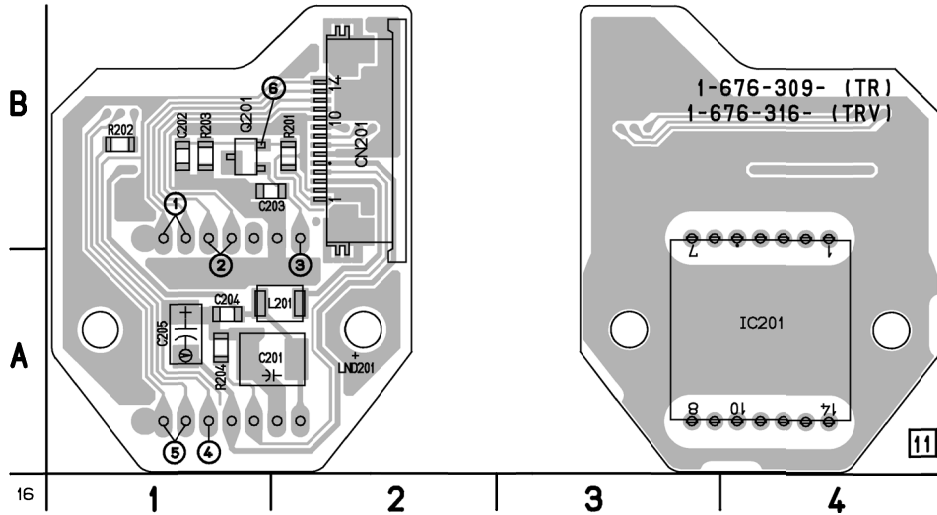
Fig. b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

CD-239/240 (CCD IMAGER) PRINTED WIRING BOARD

— Ref. No. CD-239/240 Board; 2,000 Series —

CD-239 BOARD (TR MODEL) CD-239 BOARD (TR MODEL) CD-240 BOARD (TRV MODEL) CD-240 BOARD (TRV MODEL) (SIDE A) (SIDE B)



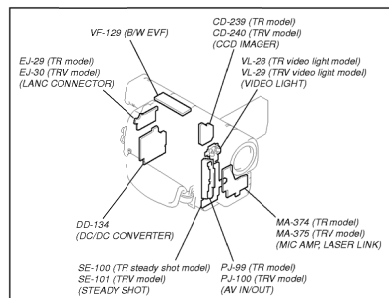
For printed wiring board

- Refer to page 4-91 for location.
- Chip parts

Transistor

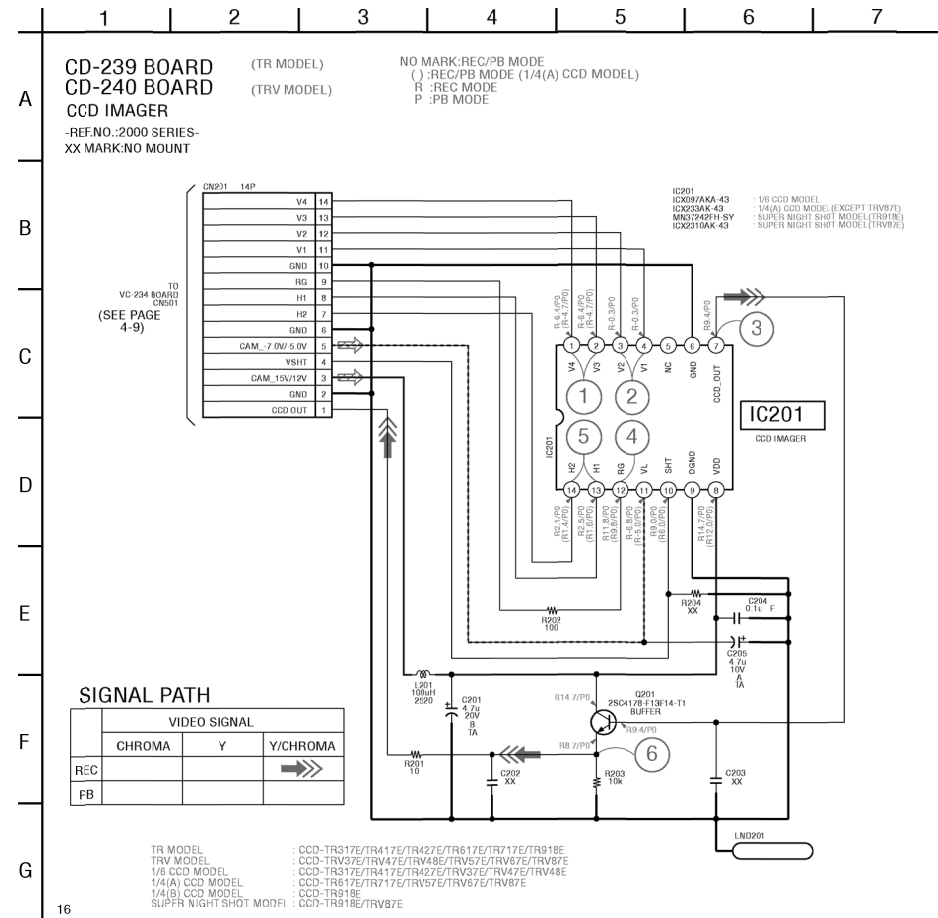


There are few cases that the part printed on this diagram isn't mounted in this model.



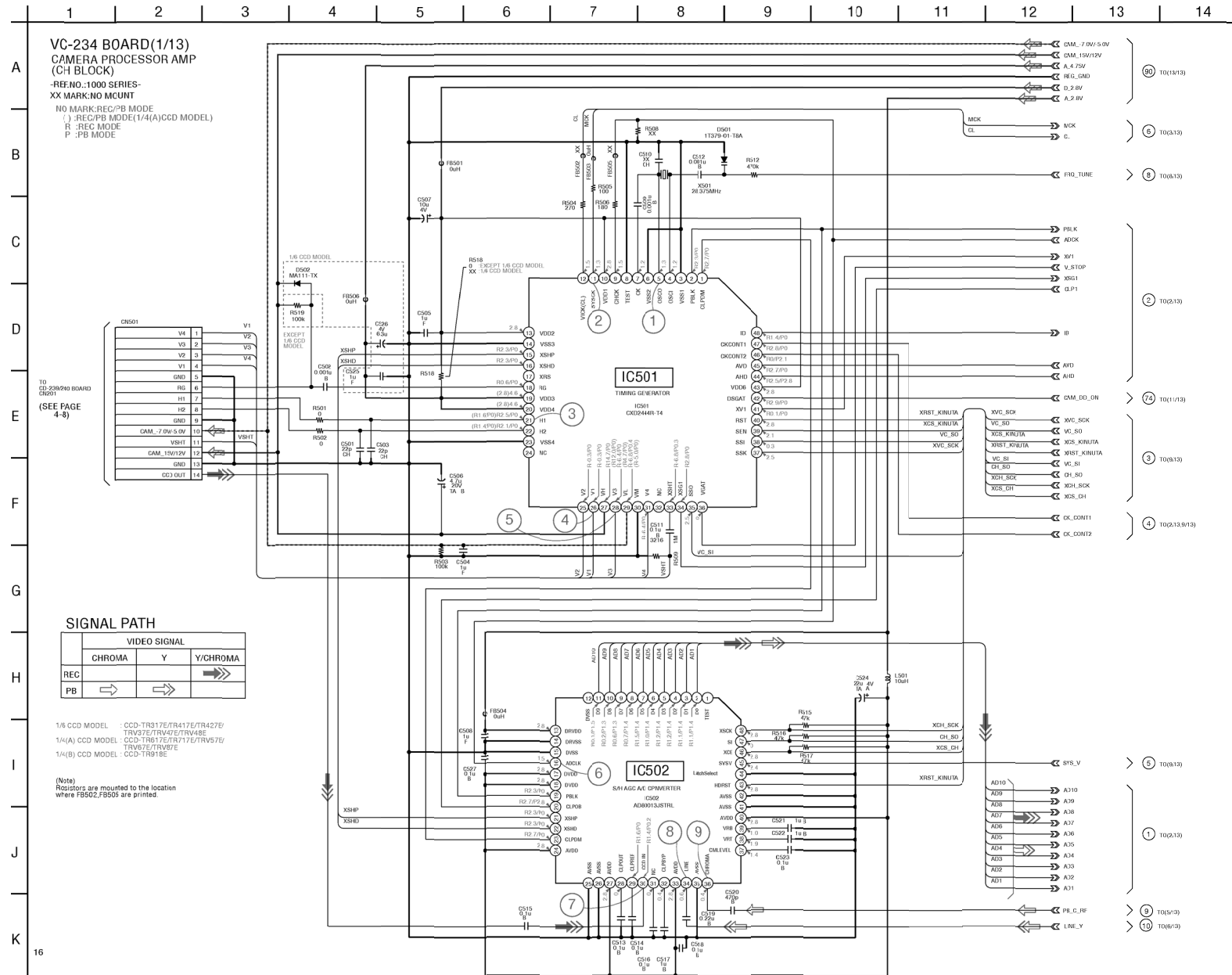
For Schematic Diagram

- Refer to page 4-87 for waveforms.



For Schematic Diagram

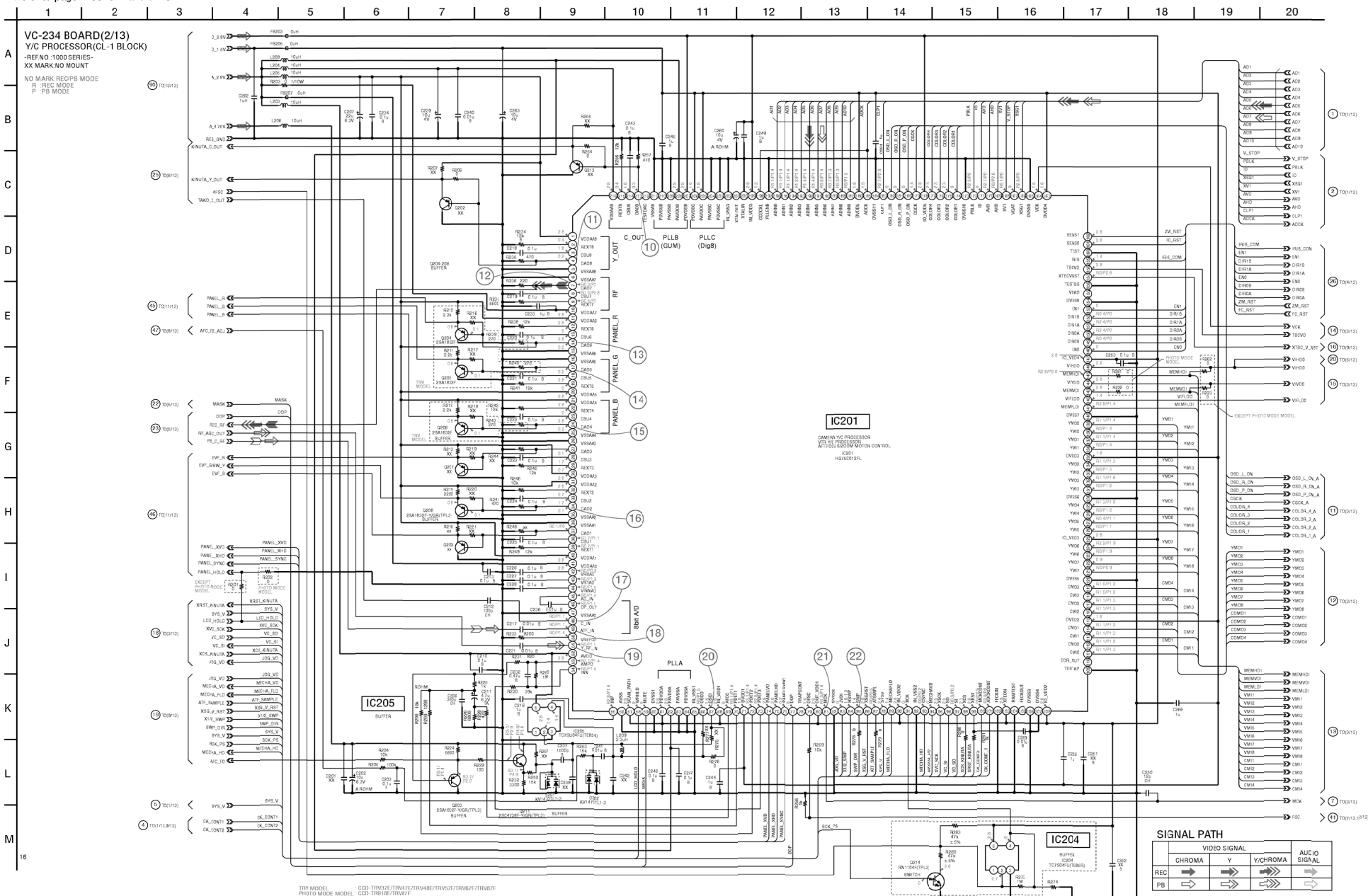
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-87 for waveforms.



CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

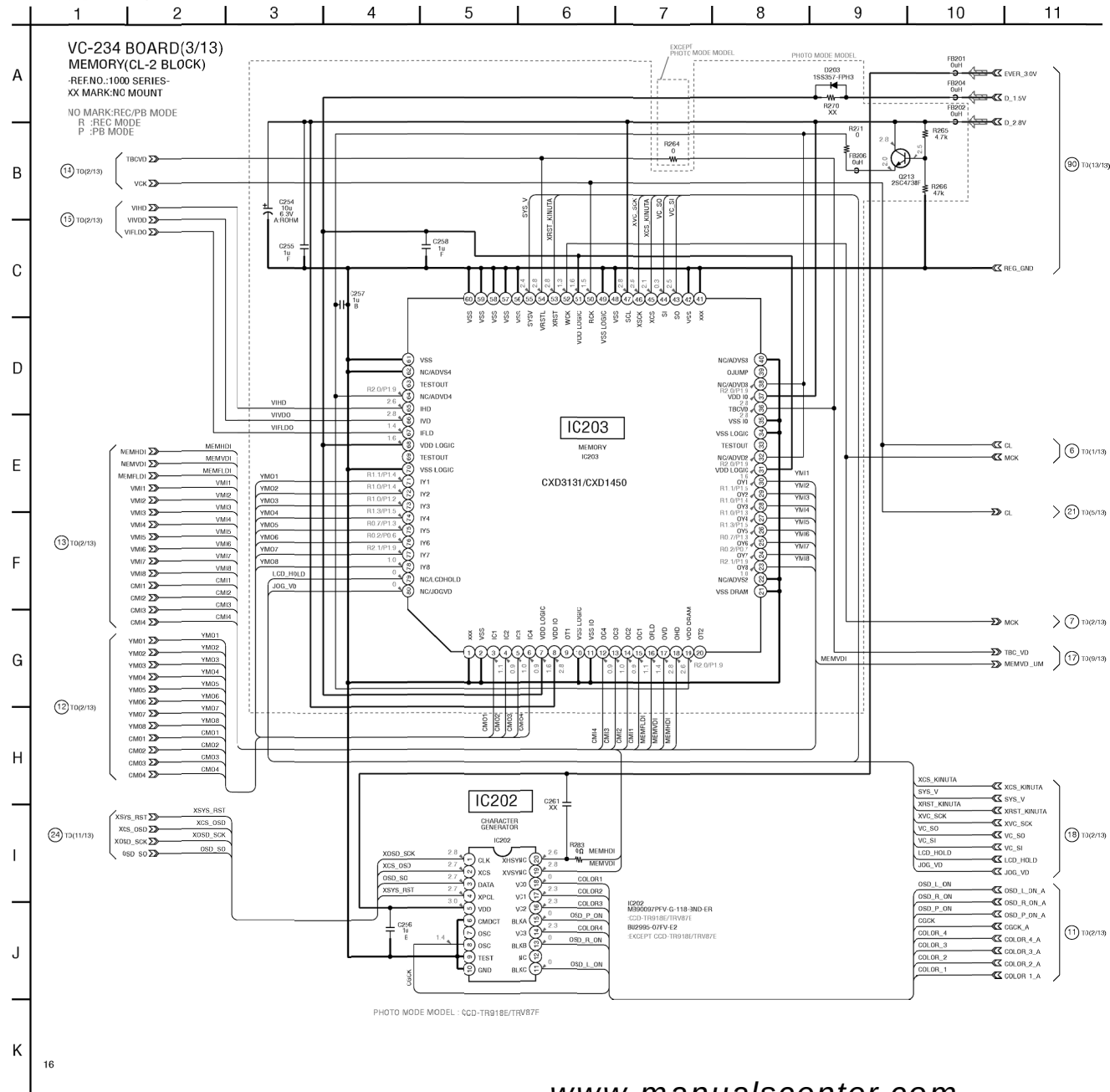
For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-88 for waveforms.

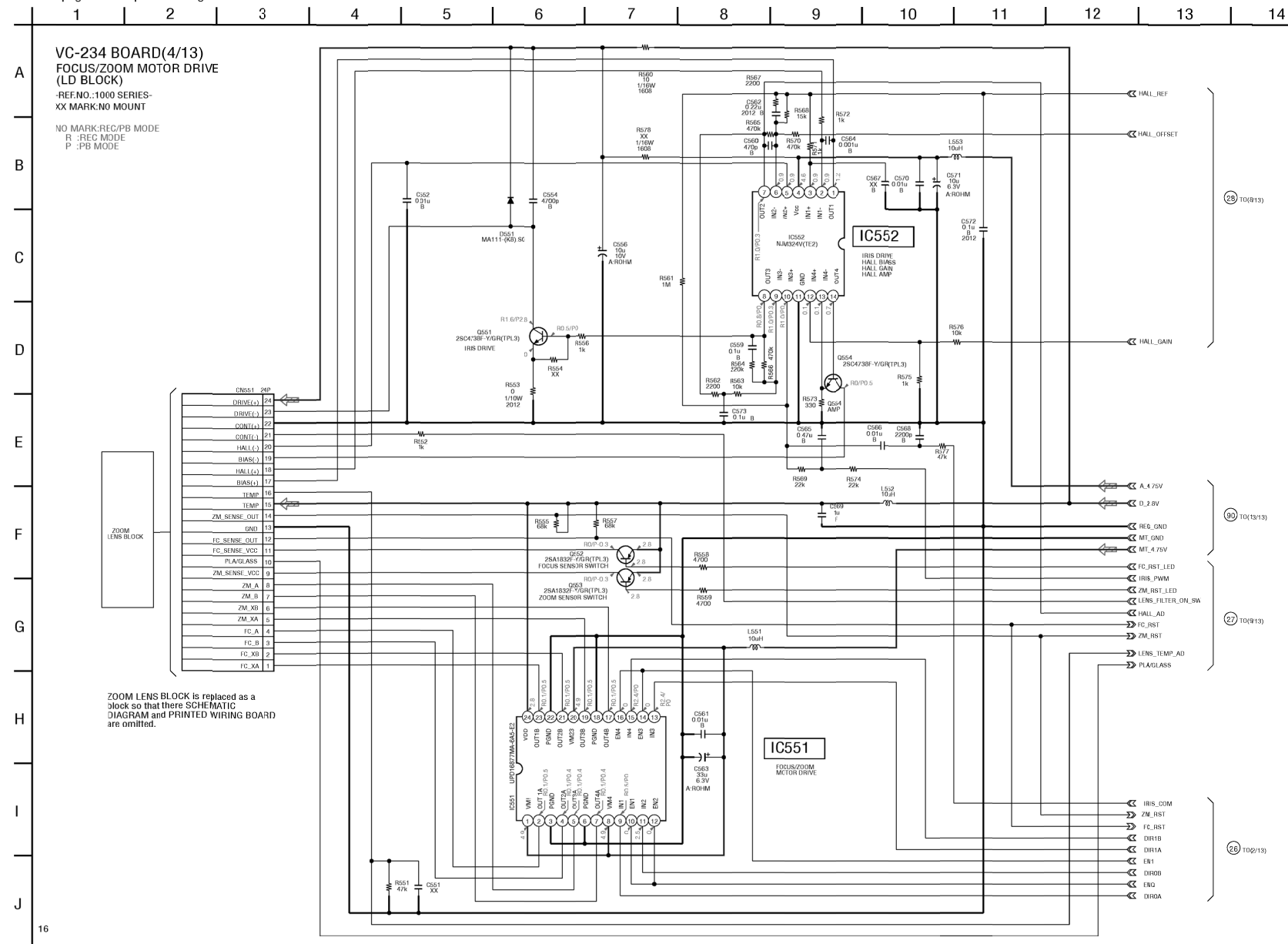


For Schematic Diagram

- Refer to page 4-35 for printed wiring board.

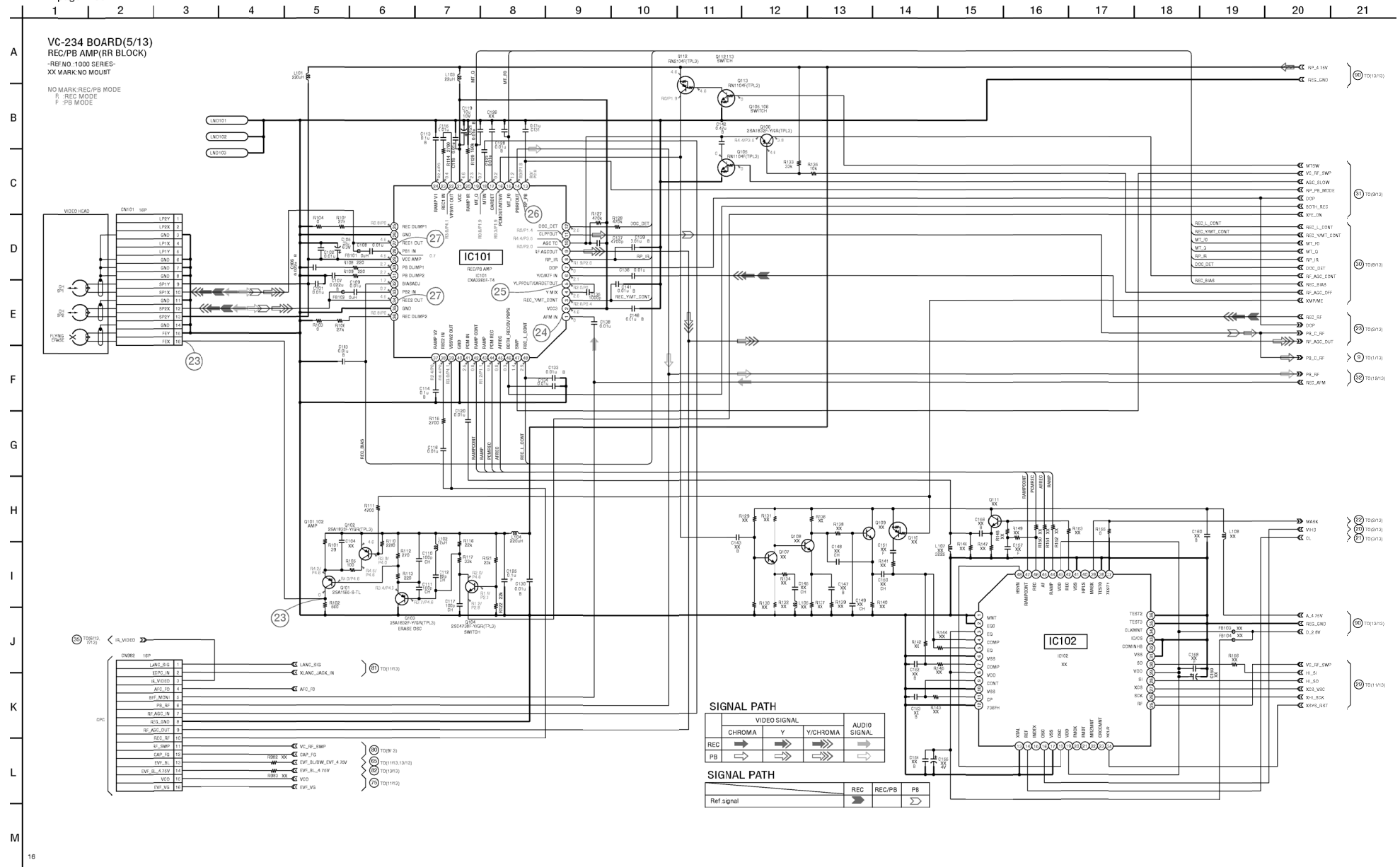


For Schematic Diagram
• Refer to page 4-35 for printed wiring board.



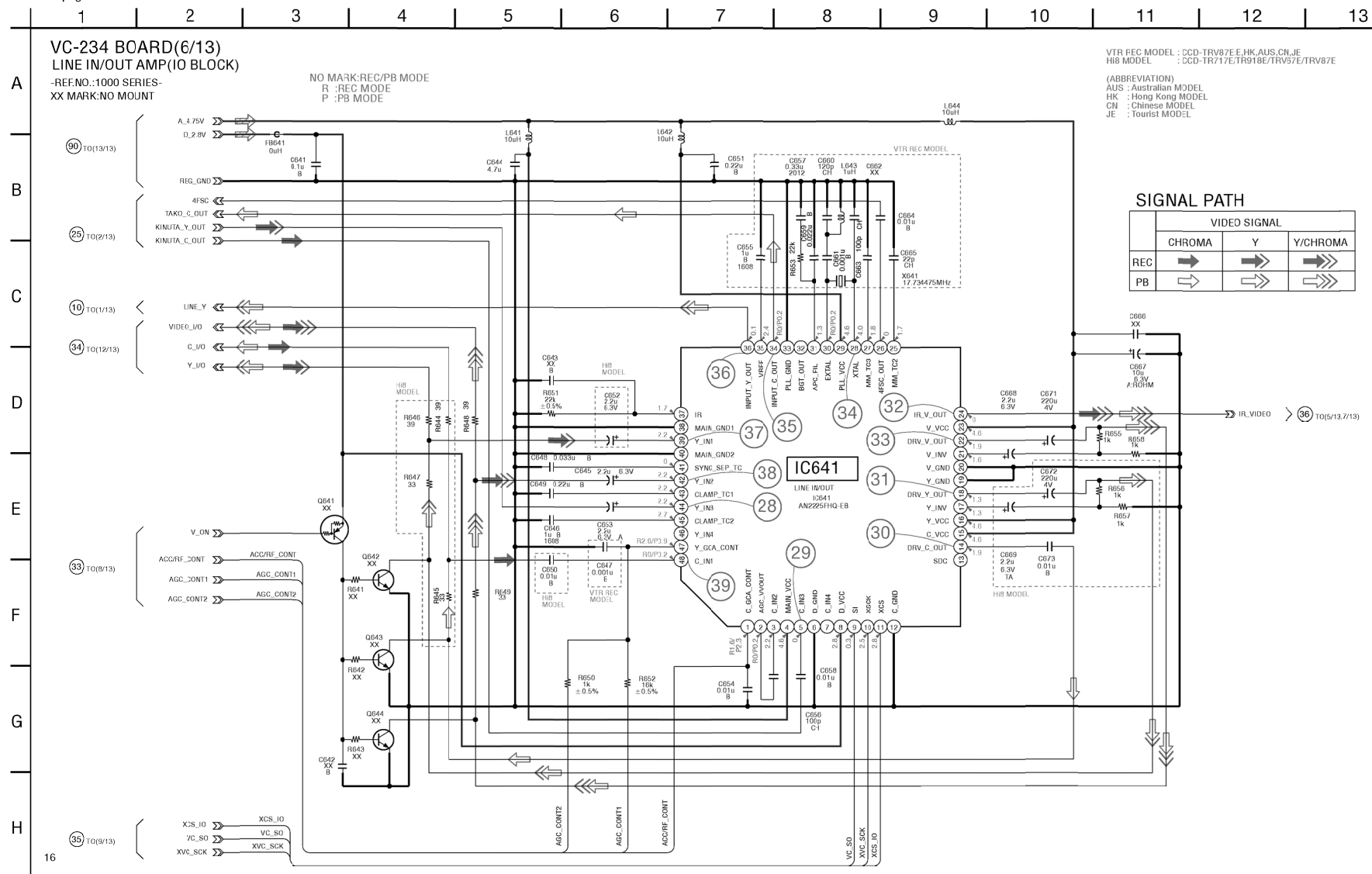
For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-88 for waveforms.



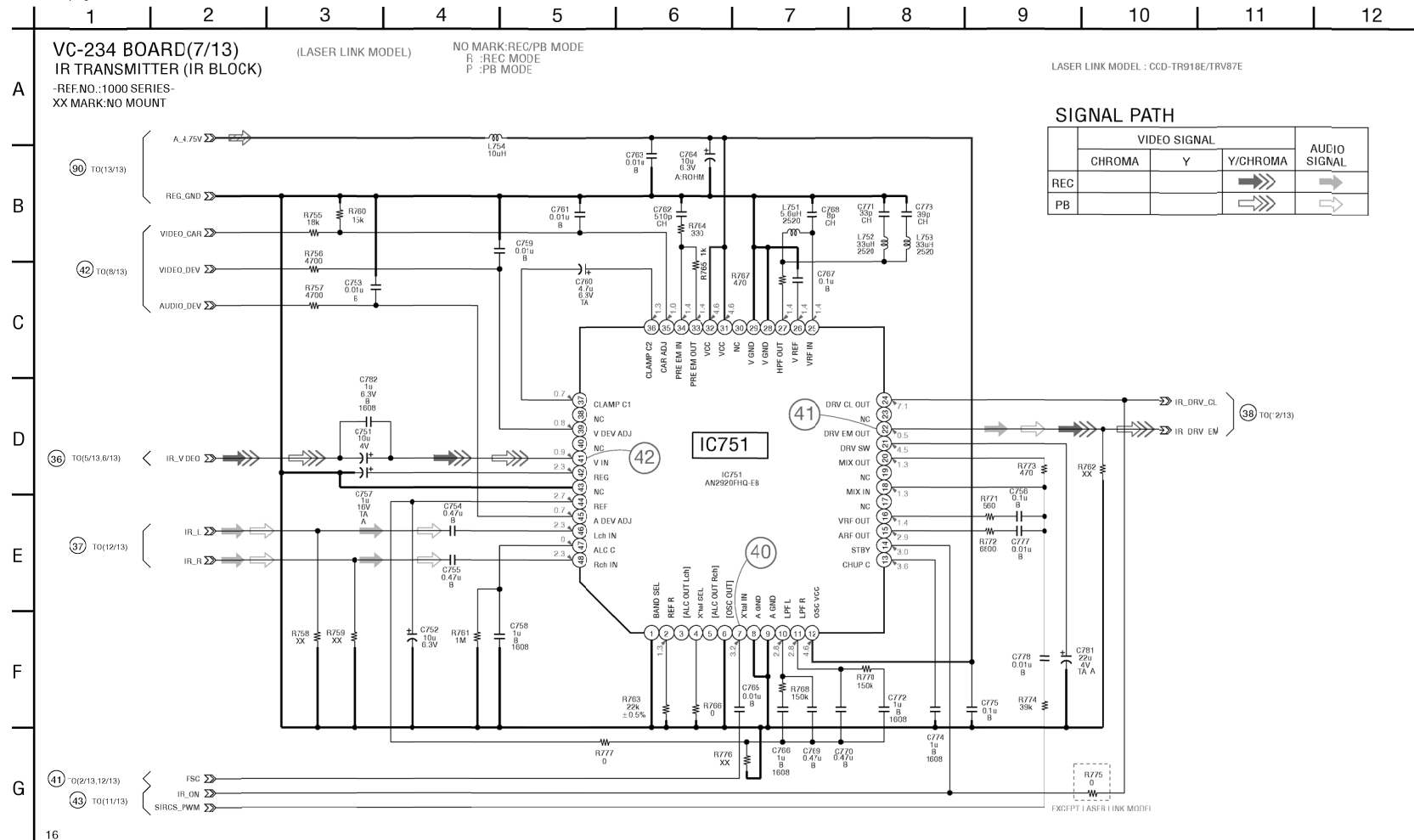
For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.



For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.

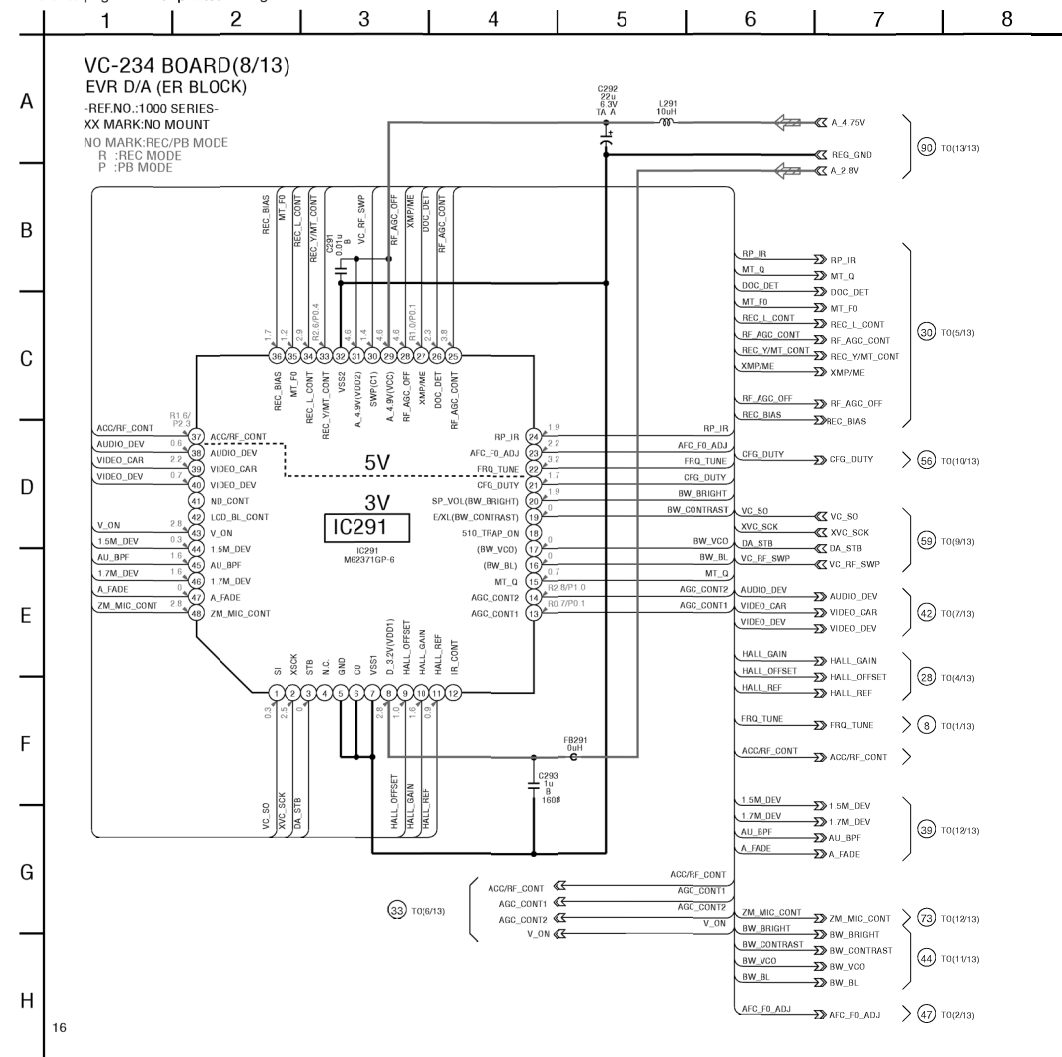


CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

FP-249 (S/T REEL SENSOR, TAPE TOP), FP-356 (TAPE END), FP-355 (TAPE LED) FLEXIBLE BOARD

— Ref. No. FP-249, 356, 355 FLEXIBLE board; 1,000 series —

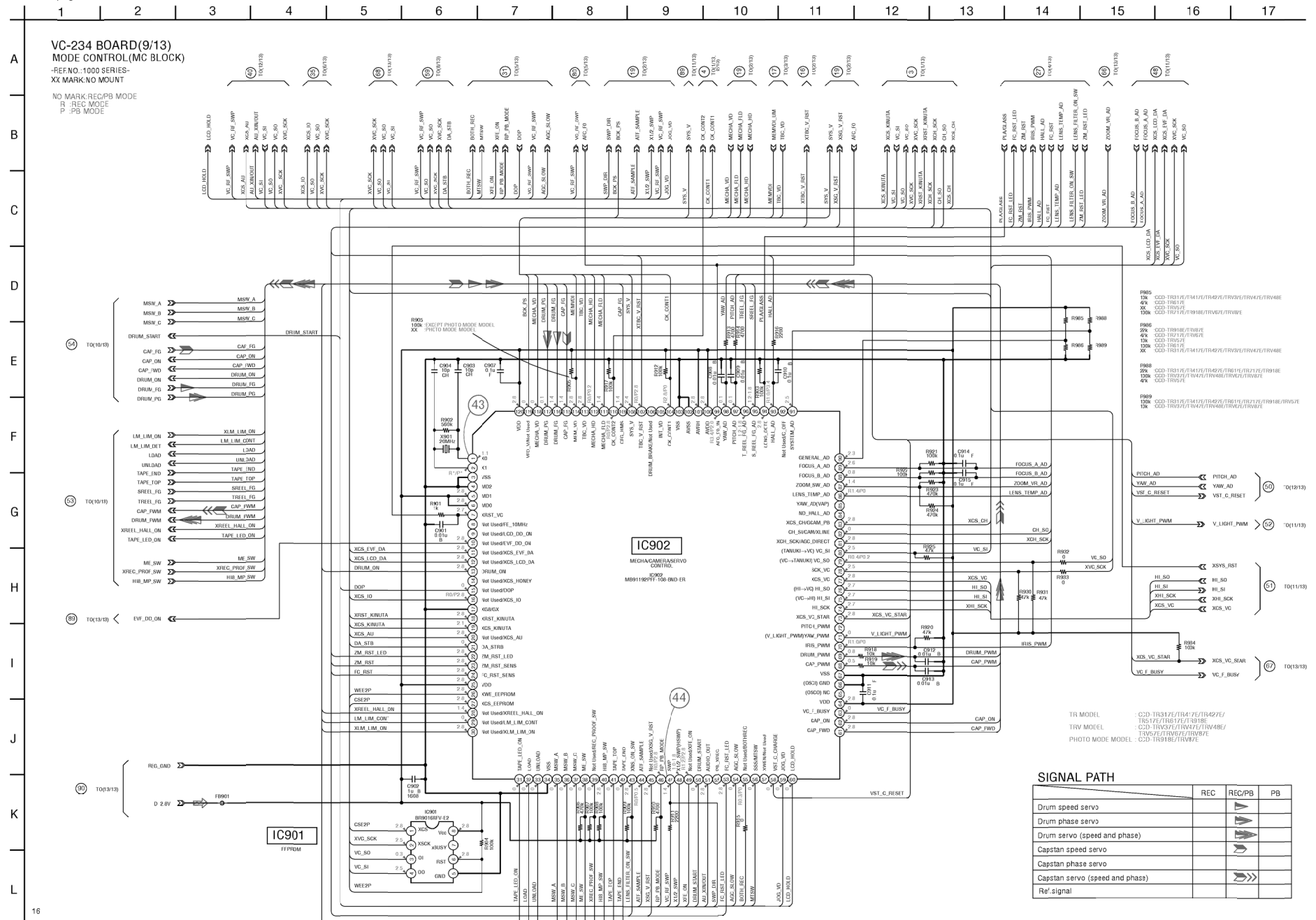
For Schematic Diagram
• Refer to page 4-35 for printed wiring board.



www.manualscenter.com

For Schematic Diagram

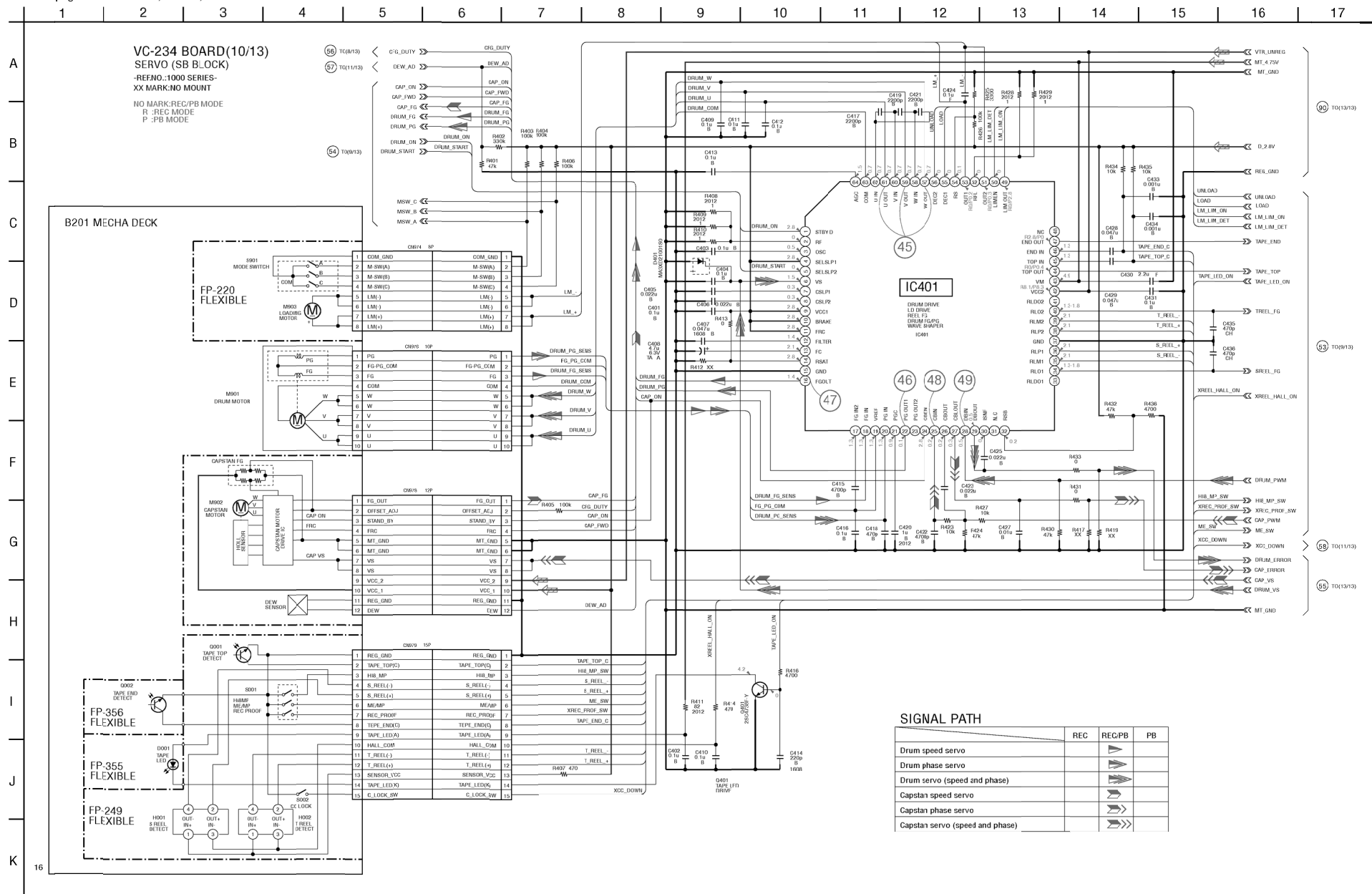
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.



CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

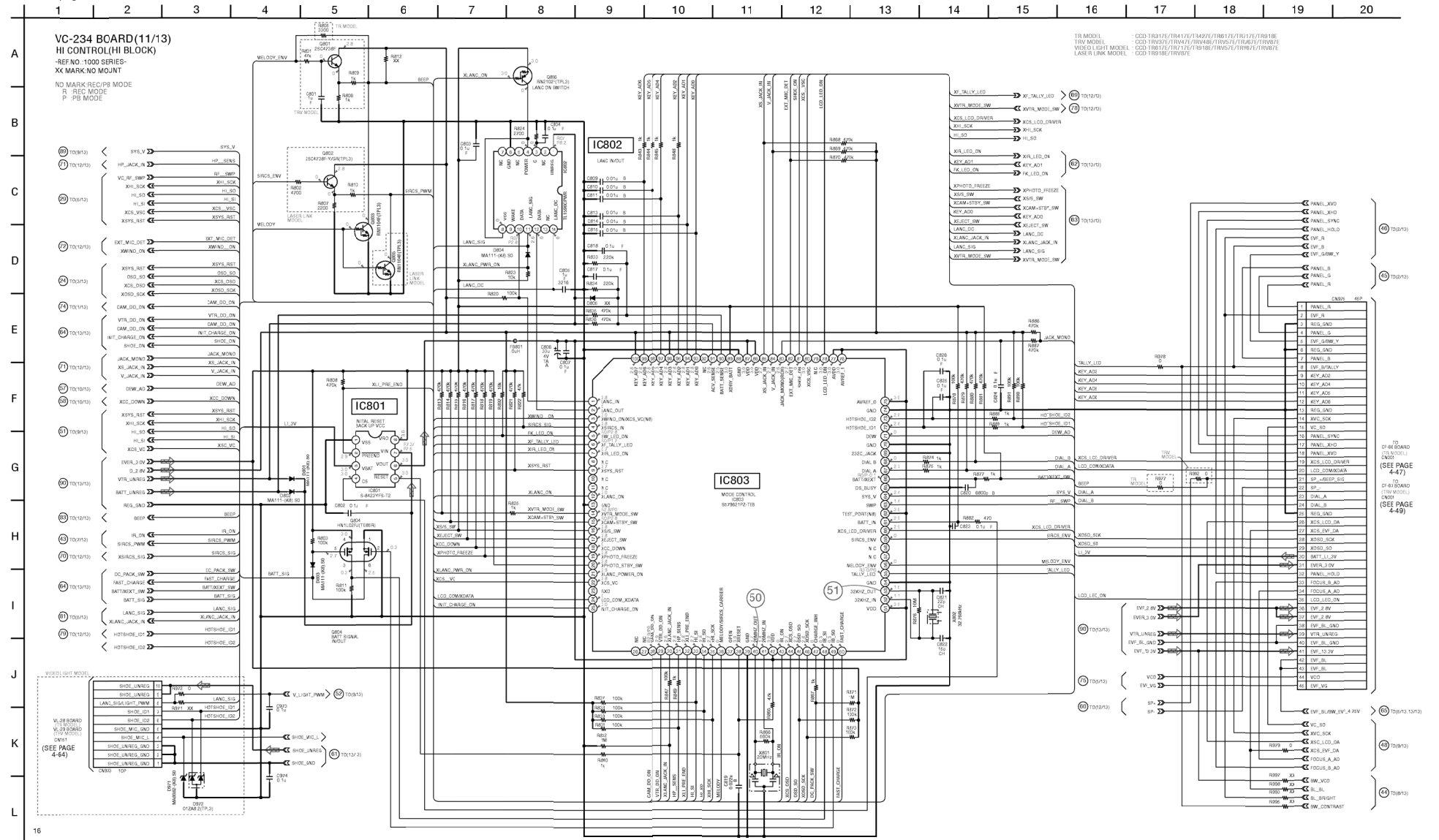
For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.
- Refer to page 4-23 for FP-249, FP-356, FP-355 flexible board.

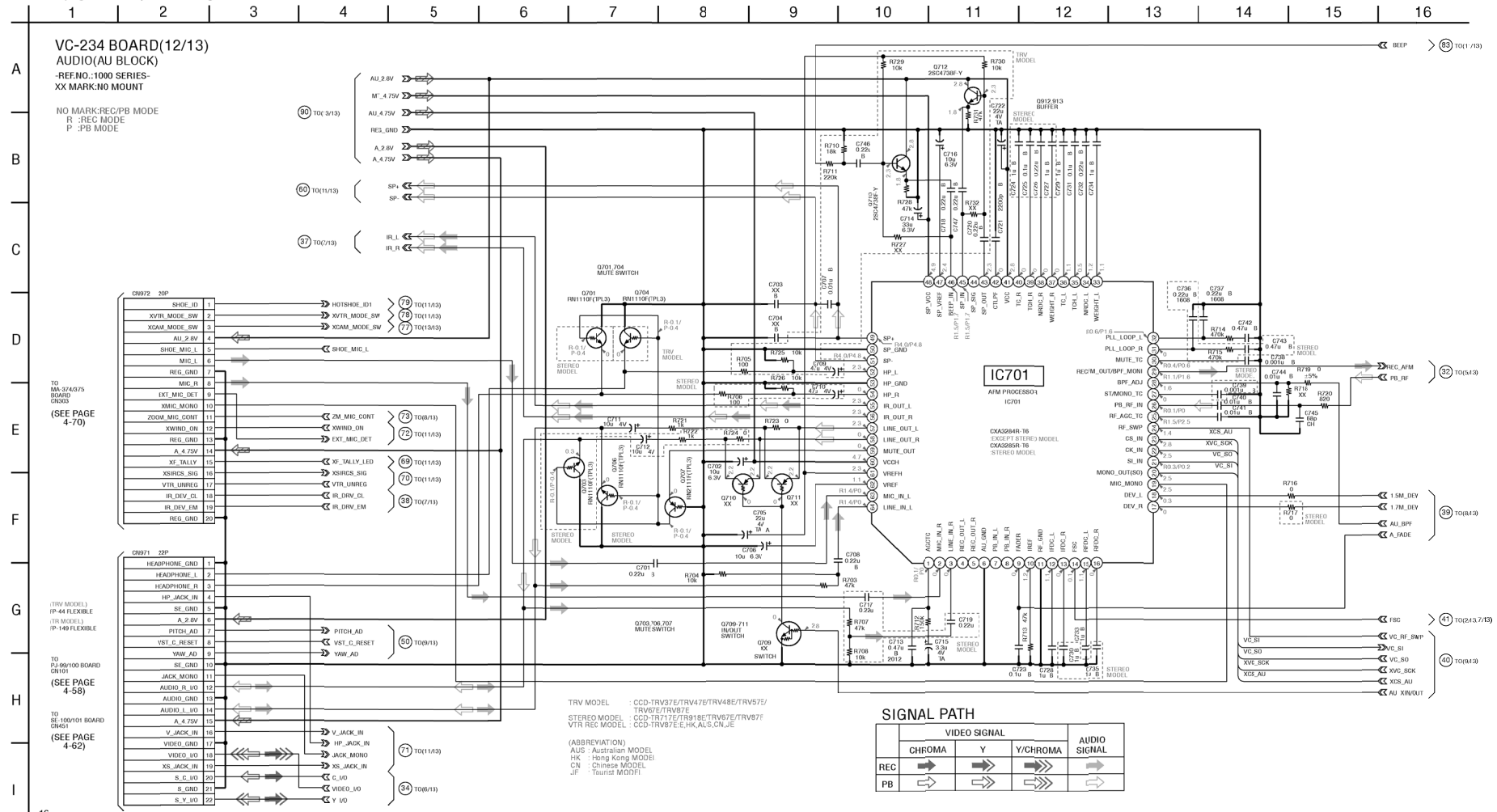


For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.

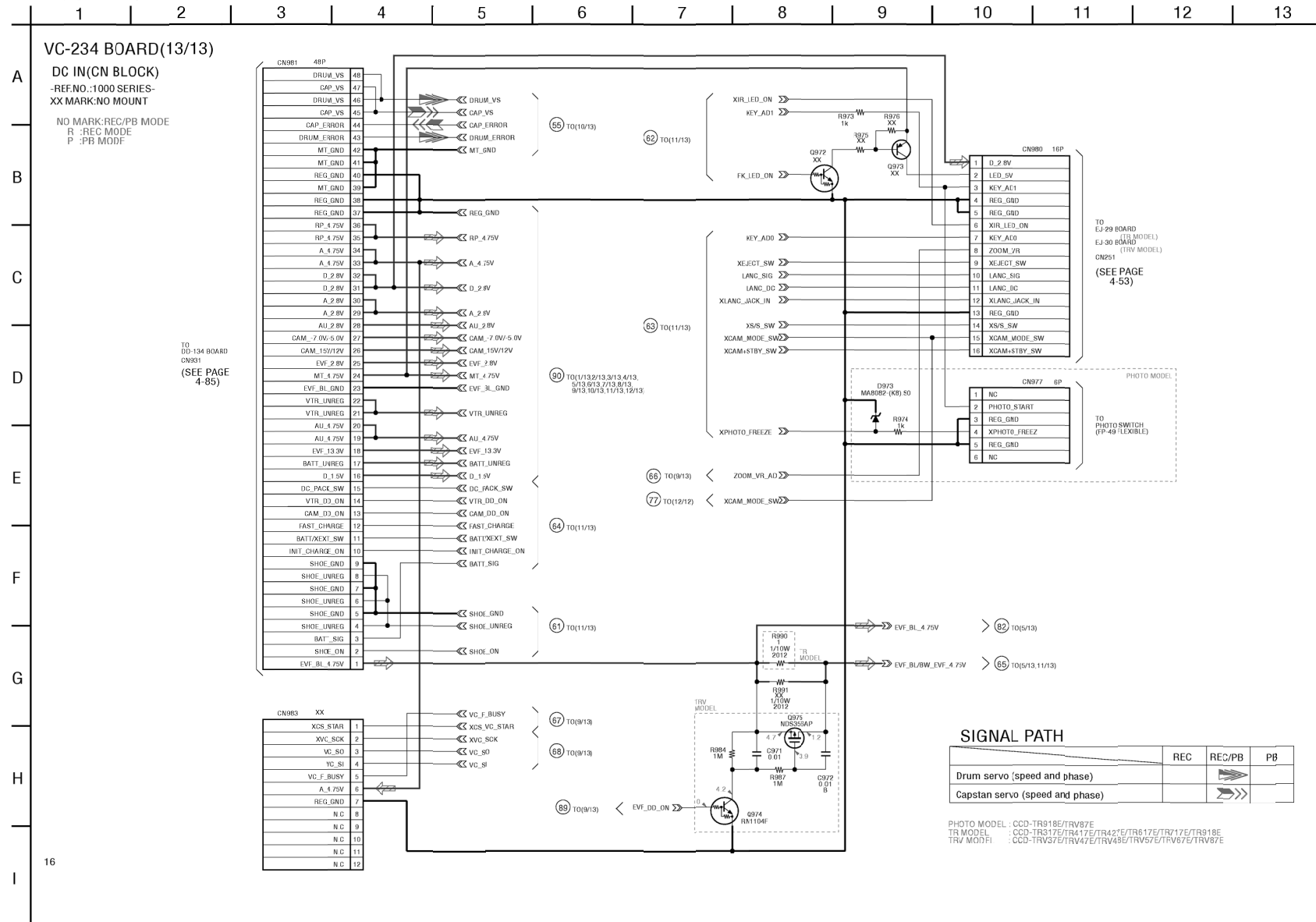


- Refer to page 4-35 for printed wiring board.



For Schematic Diagram

• Refer to page 4-35 for printed wiring board.



VC-234 (CAMERA, Y/C PROCESSOR, FOCUS/ZOOM MOTOR DRIVE, REC/PB AMP, LINE IN/OUT, MODE CONTROL, SERVO, HI CONTROL, AUDIO)
PRINTED WIRING BOARD

— Ref. No. VC-234 Board; 1,000 Series —

VC-234 BOARD (SIDE A)

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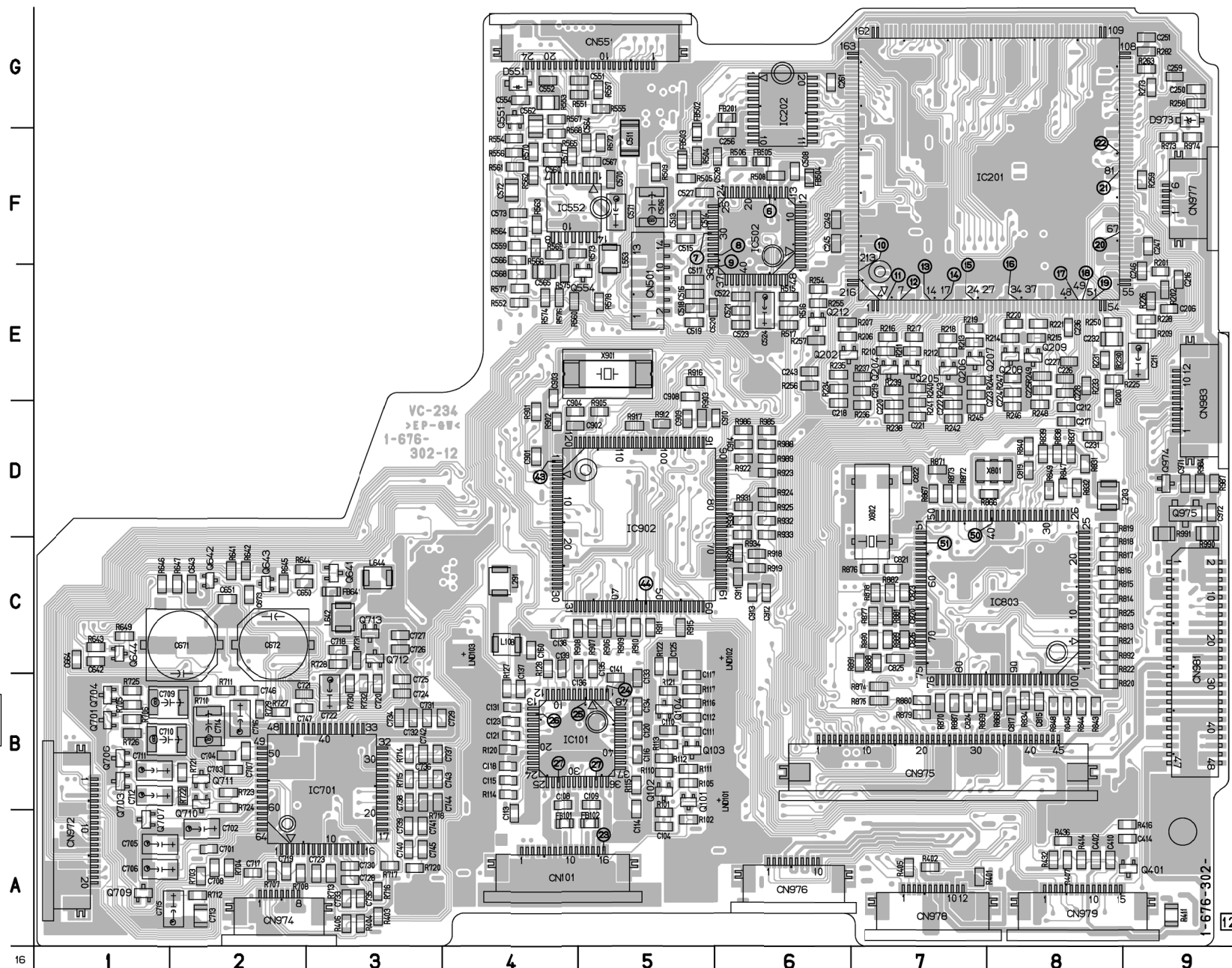
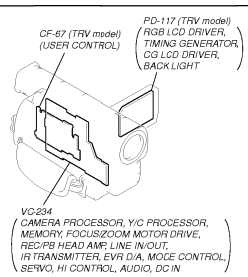


- Refer to page 4-91, 92 for location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.
- Chip parts

Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.



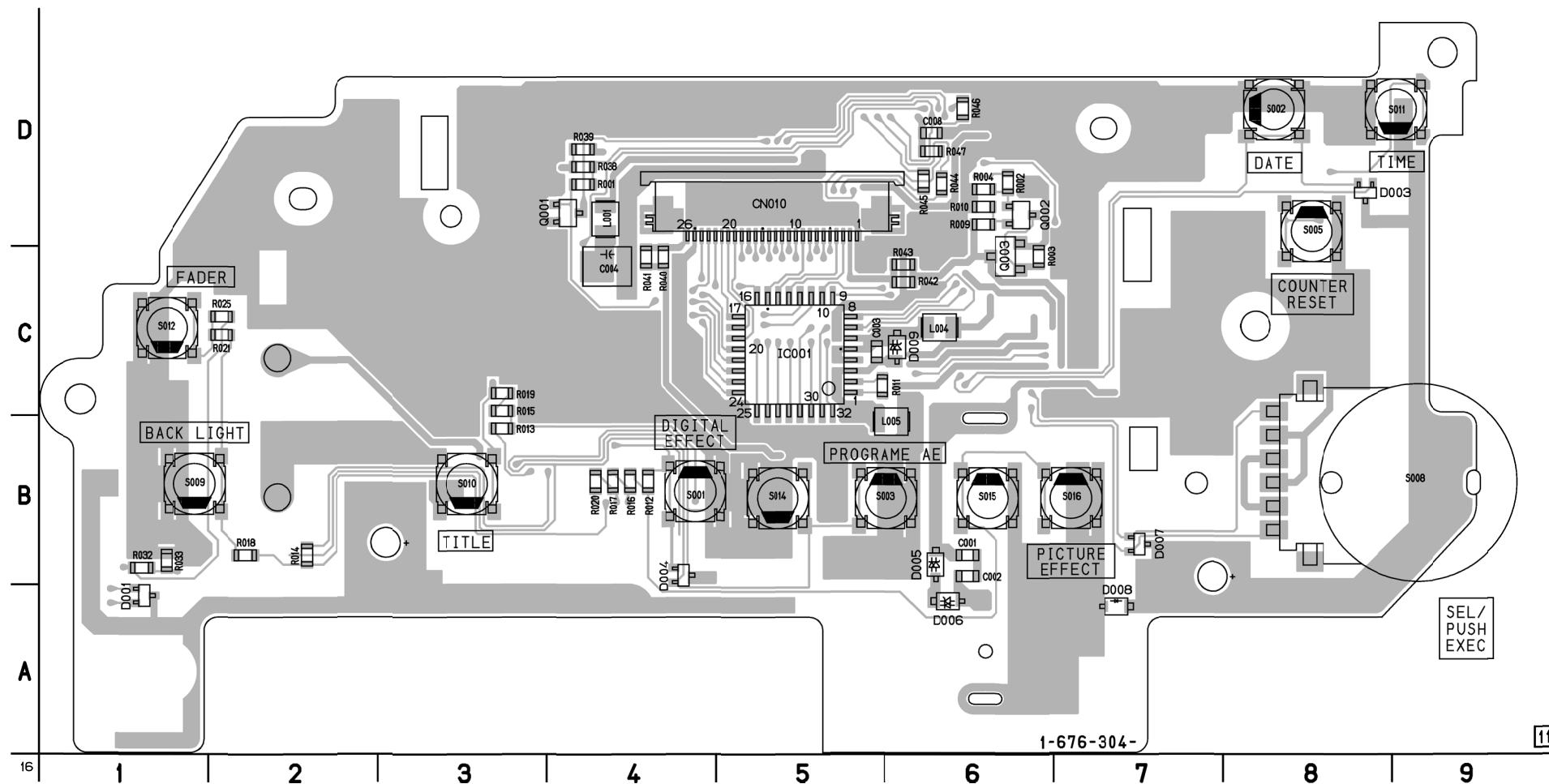
1-676-302-

CF-66 (USER CONTROL) PRINTED WIRING BOARD

— Ref. No. CF-66 Board; 3,000 Series —

www.manualscenter.com

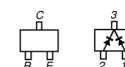
CF-66 BOARD (SIDE A) (TR MODEL)



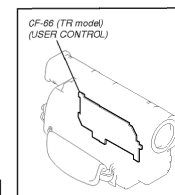
For printed wiring board

- Refer to page 4-92 for location.
- Chip parts

Transistor Diode



There are few cases that the part printed on this diagram isn't mounted in this model.



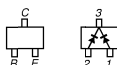
CF-67 (USER CONTROL) PRINTED WIRING BOARD

— Ref. No. CF-67 Board; 4,000 Series —

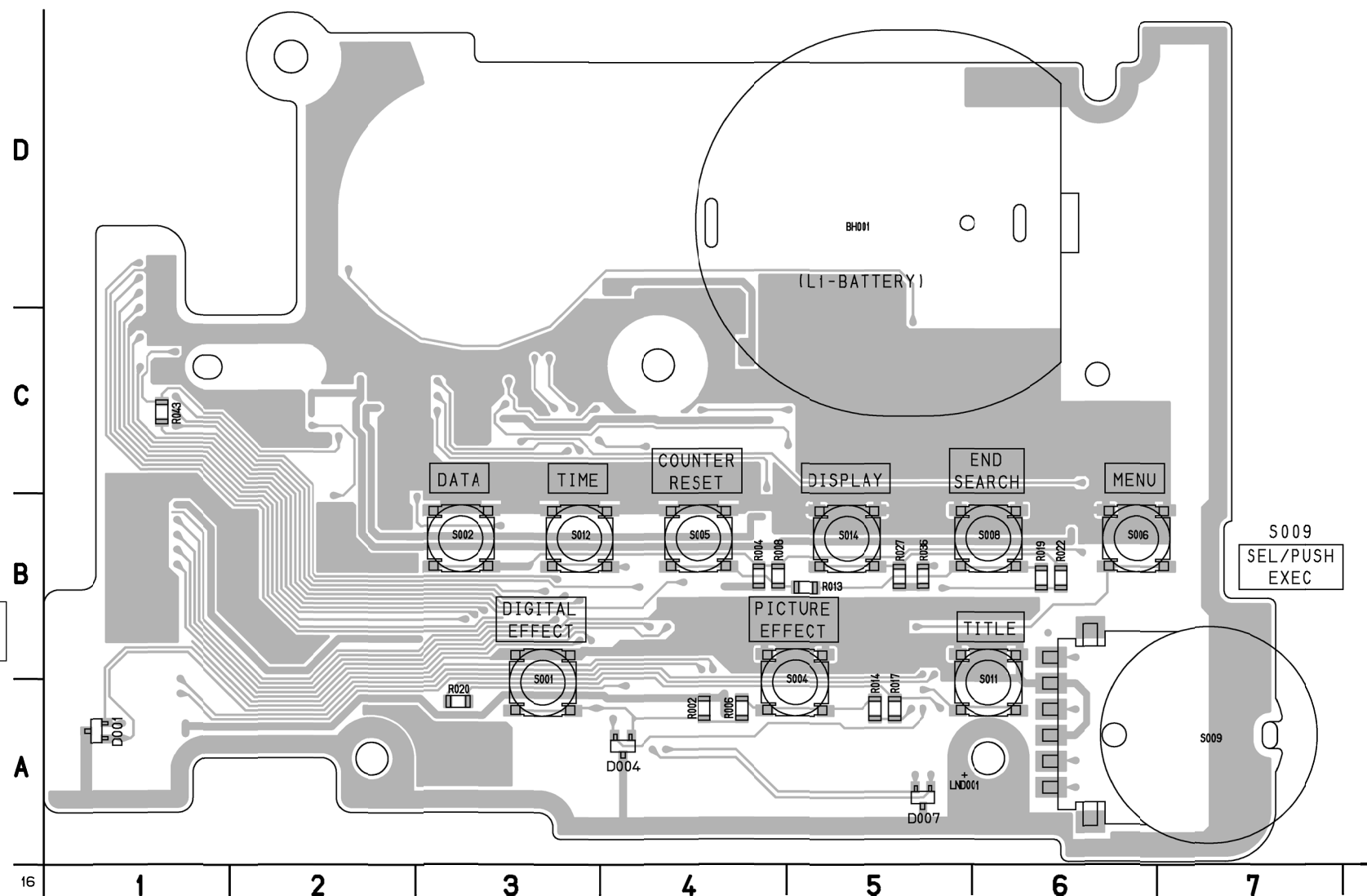
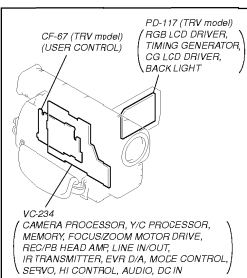
CF-67 BOARD (SIDE A) (TRV MODEL)

For printed wiring board
• Refer to page 4-93 for location.
• Chip parts

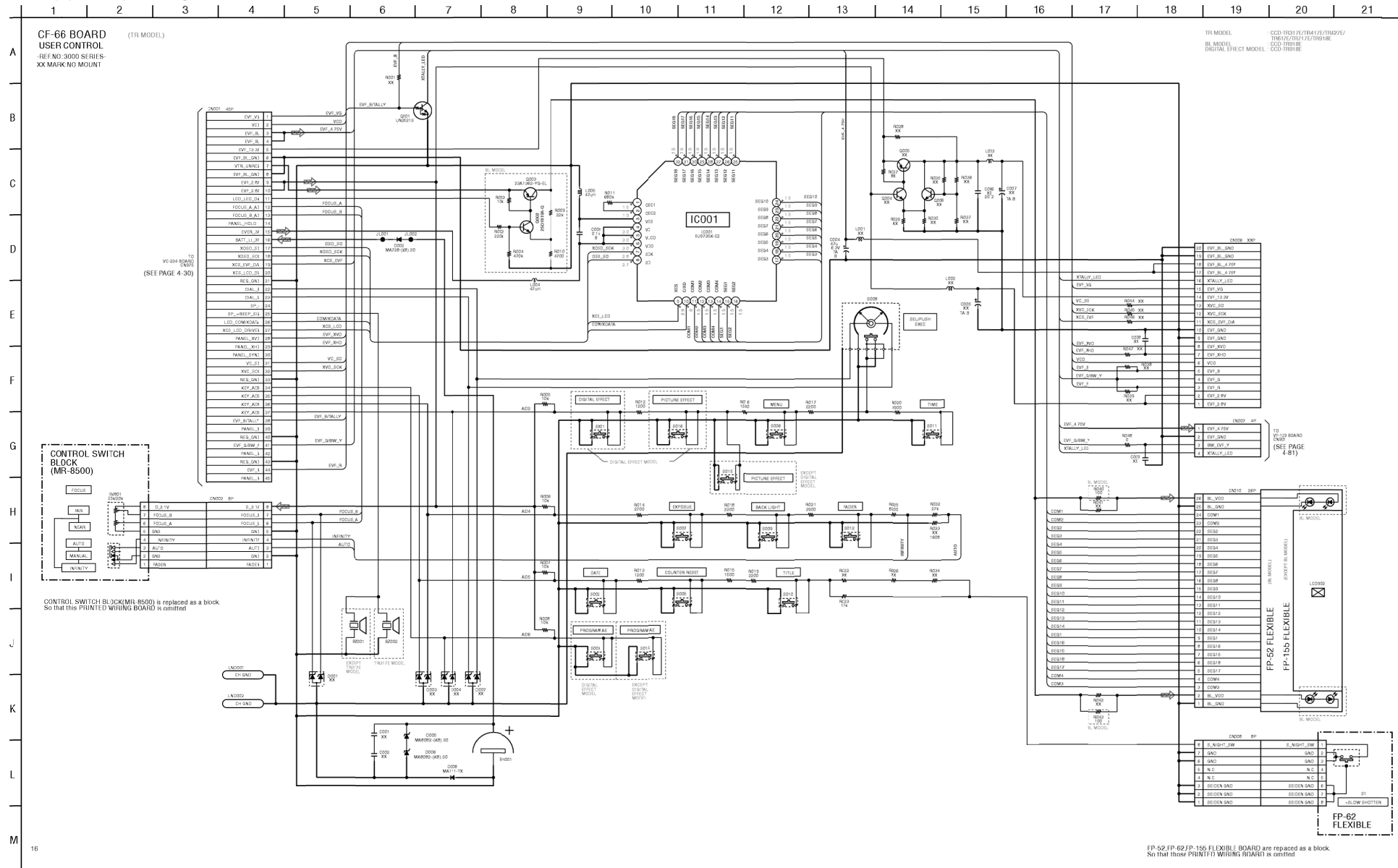
Transistor Diode



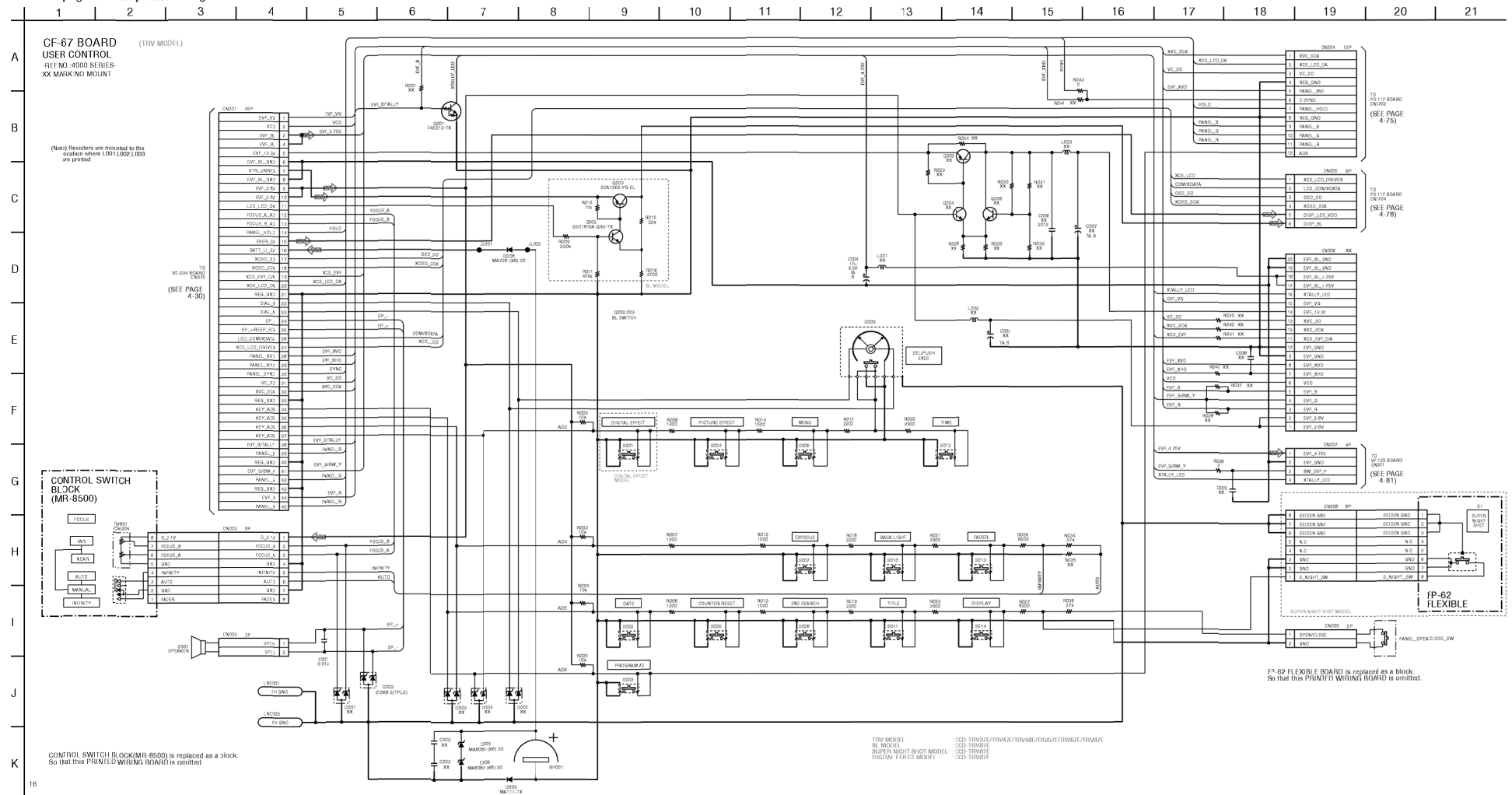
There are few cases that the part
printed on this diagram isn't
mounted in this model.



- Refer to page 4-39 for printed wiring board.



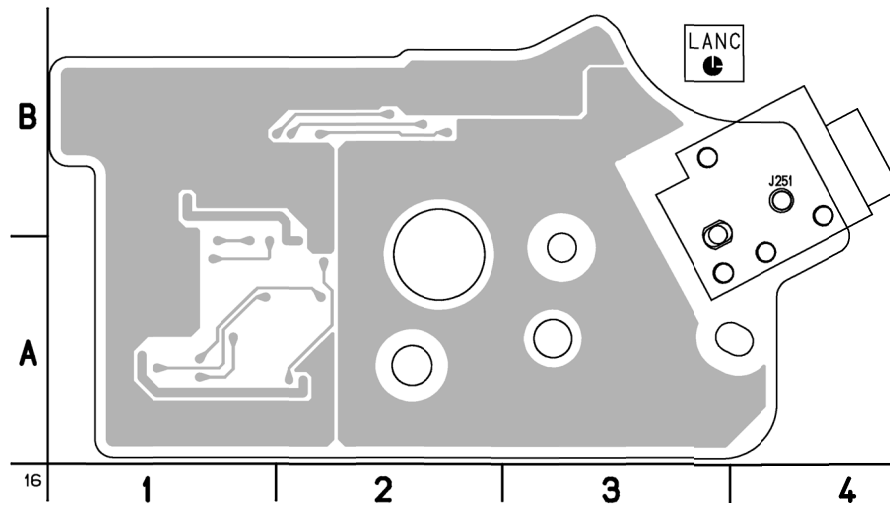
- Refer to page 4-43 for printed wiring board.



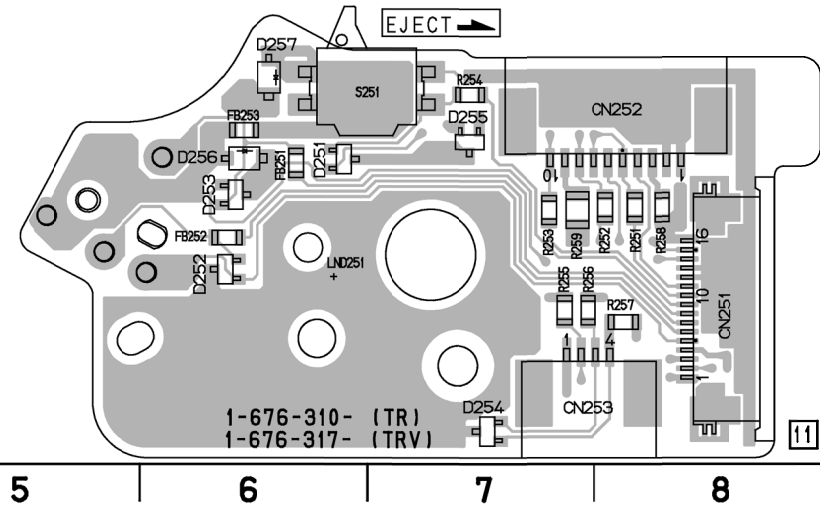
EJ-29/30 (LANC CONNECTOR), SS-9700 (START/STOP SWITCH) PRINTED WIRING BOARDS

— Ref. No. EJ-29/30 Board; 2,000 Series —

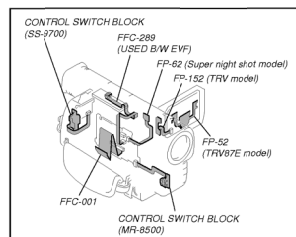
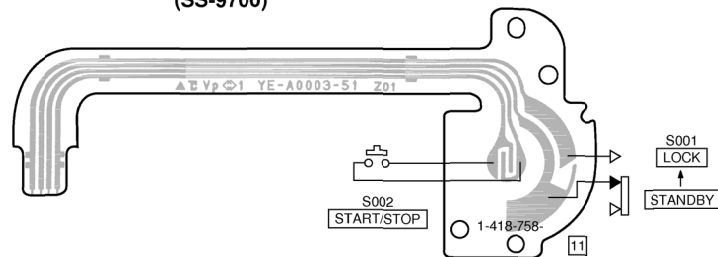
EJ-29 BOARD (SIDE A) (TR MODEL)
EJ-30 BOARD (SIDE A) (TRV MODEL)



EJ-29 BOARD (SIDE B) (TR MODEL)
EJ-30 BOARD (SIDE B) (TRV MODEL)



CONTROL SWITCH BLOCK (SS-9700)



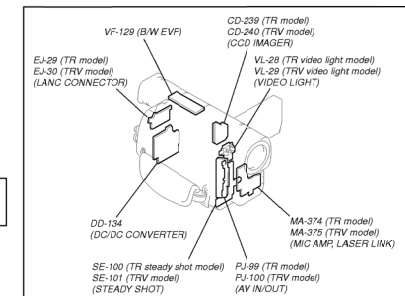
For printed wiring board

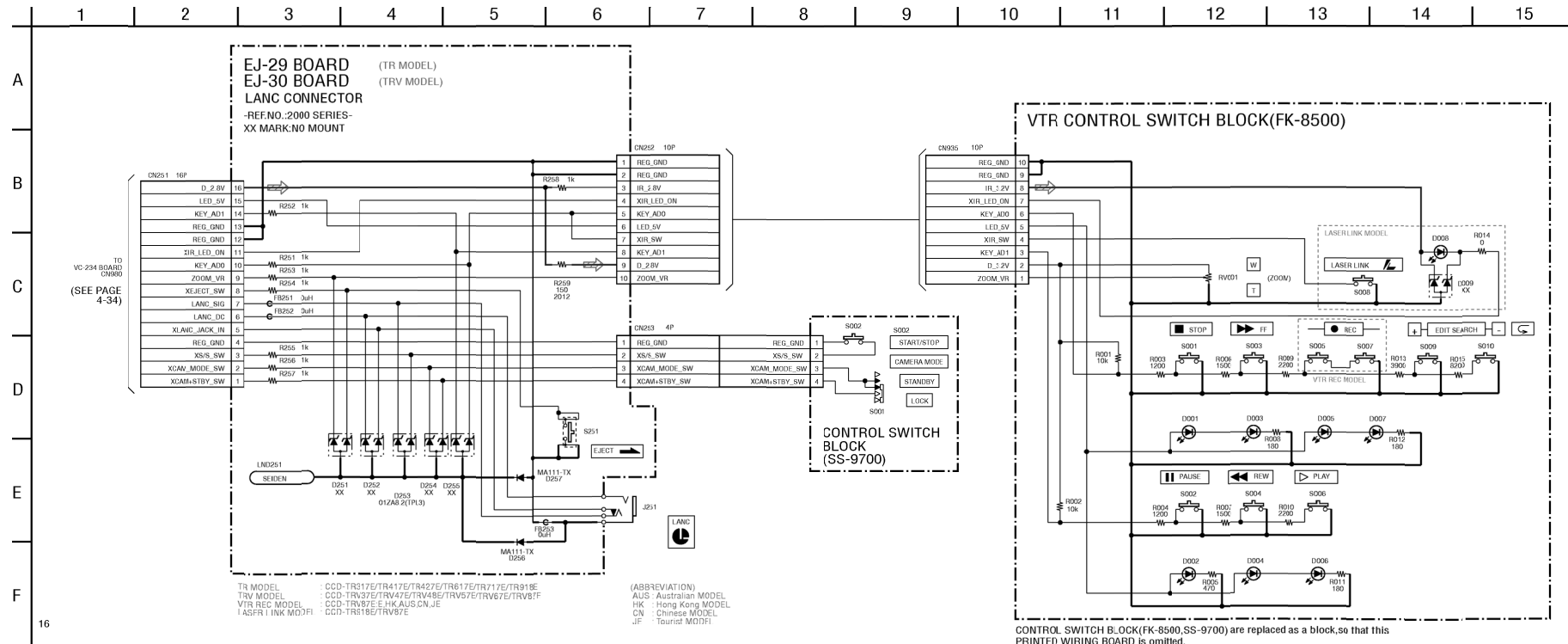
- Refer to page 4-93 for location.
- Chip parts

Diode



There are few cases that the part printed on this diagram isn't mounted in this model.





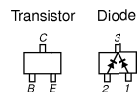
PJ-99/100 (AV IN/OUT) PRINTED WIRING BOARD

— Ref. No. PJ-99/100 Board; 4,000 Series —

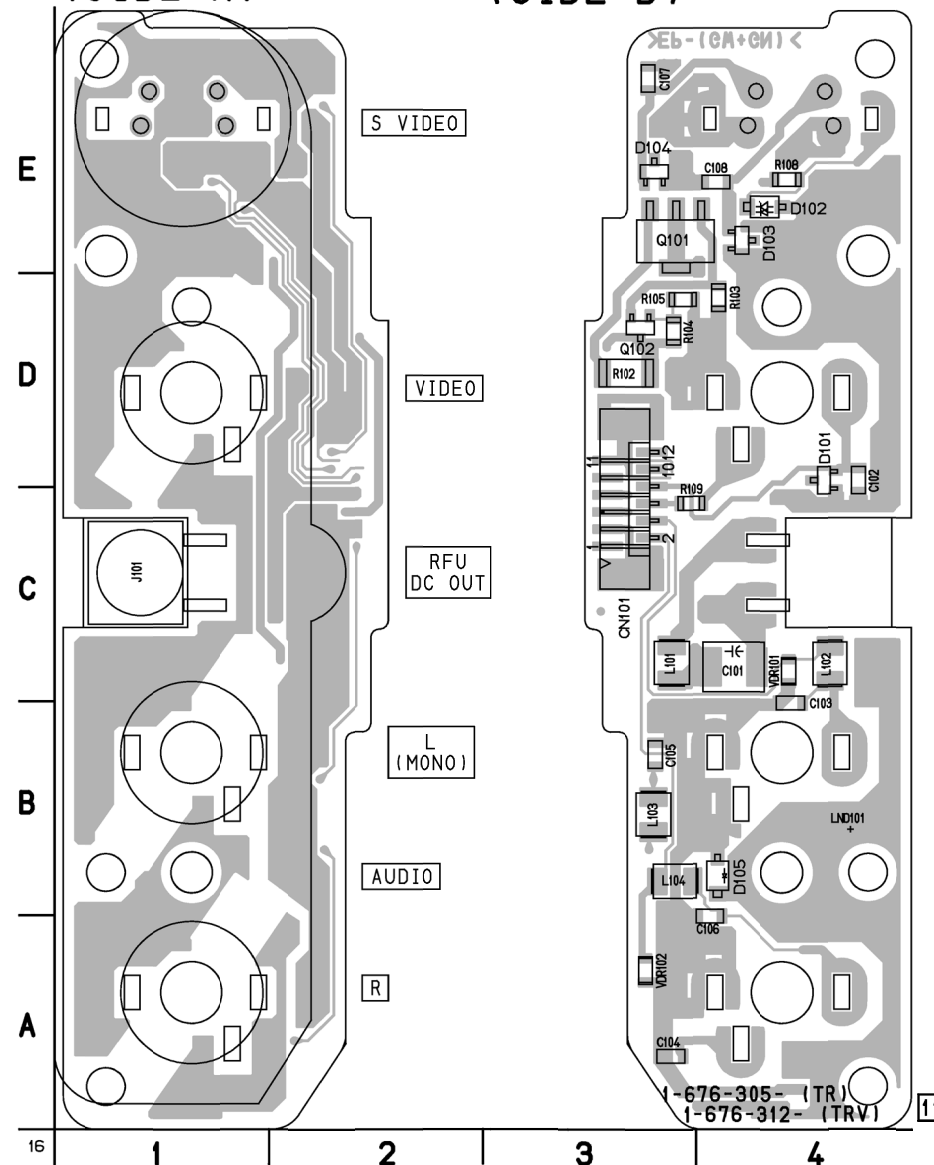
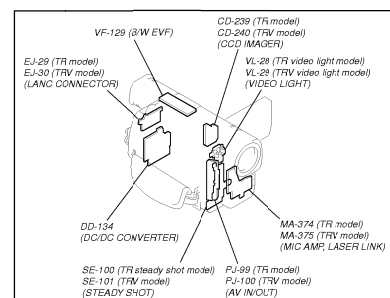
PJ-99 BOARD (TR MODEL) PJ-99 BOARD (TR MODEL)
PJ-100 BOARD (TRV MODEL) PJ-100 BOARD (TRV MODEL)
(SIDE A) (SIDE B)

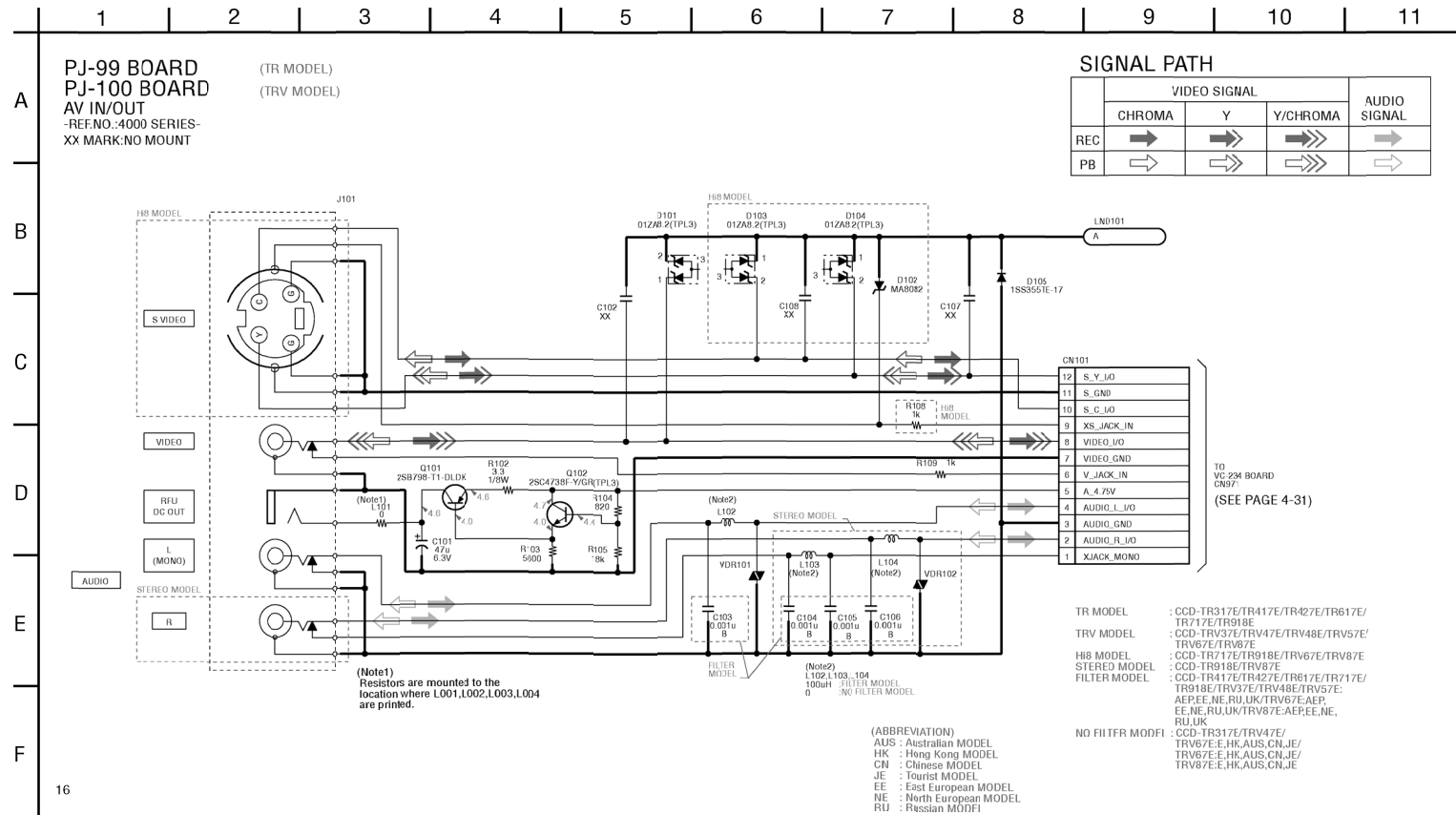
For printed wiring board

- Refer to page 4-93 for location.
- Chip parts



There are few cases that the part printed on this diagram isn't mounted in this model.





SE-100/101 (STEADY SHOT) PRINTED WIRING BOARD

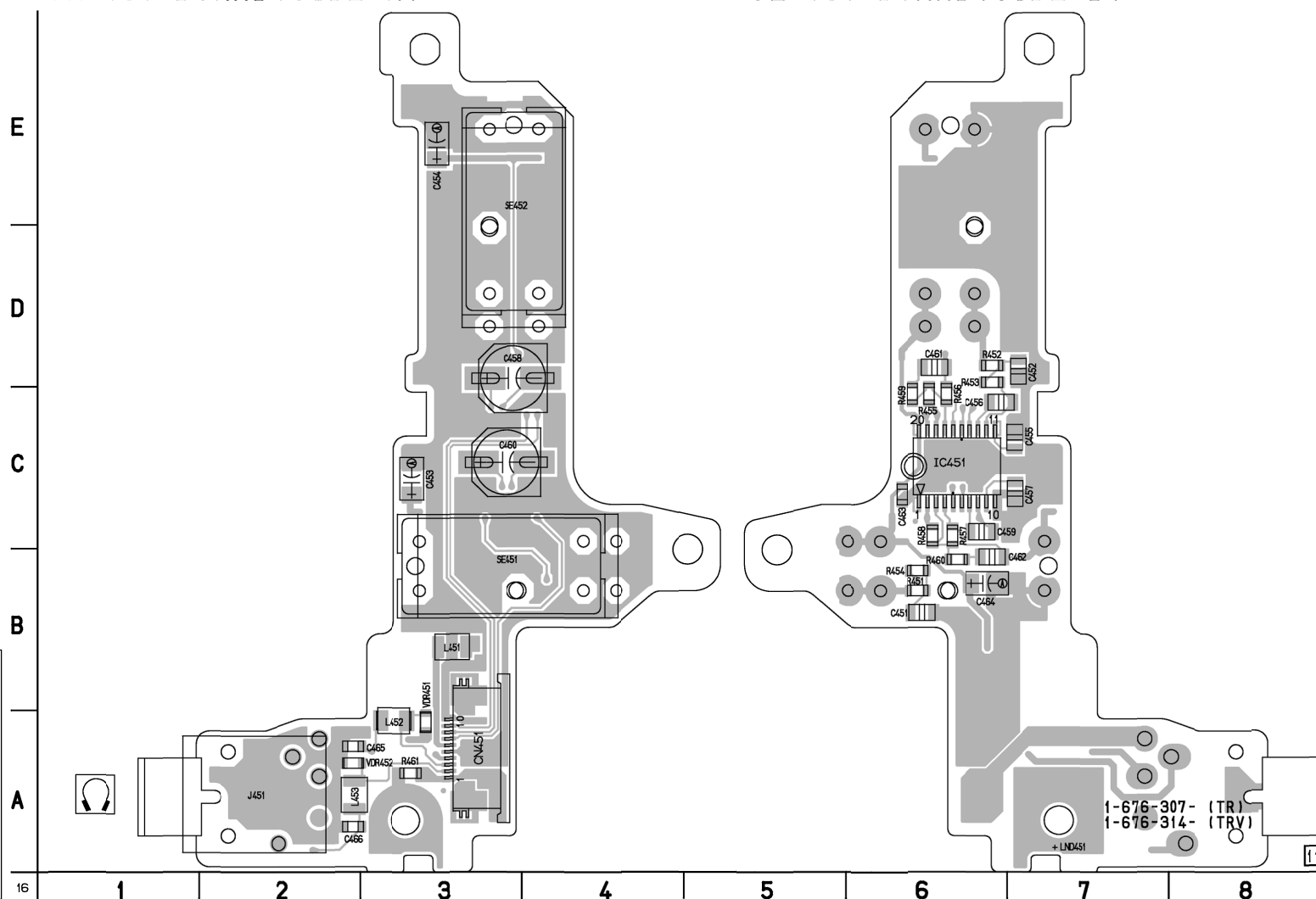
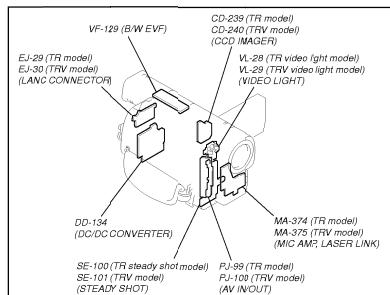
— Ref. No. SE-100/101 Board: 6,000 Series —

SE-100 BOARD (SIDE A) (TR MODEL)
SE-101 BOARD (SIDE A) (TRV MODEL)

SE-100 BOARD (SIDE B) (TR MODEL)
SE-101 BOARD (SIDE B) (TRV MODEL)

For printed wiring board
• Refer to page 4-93 for location.

There are few cases that the part printed on this
diagram isn't mounted in this model.



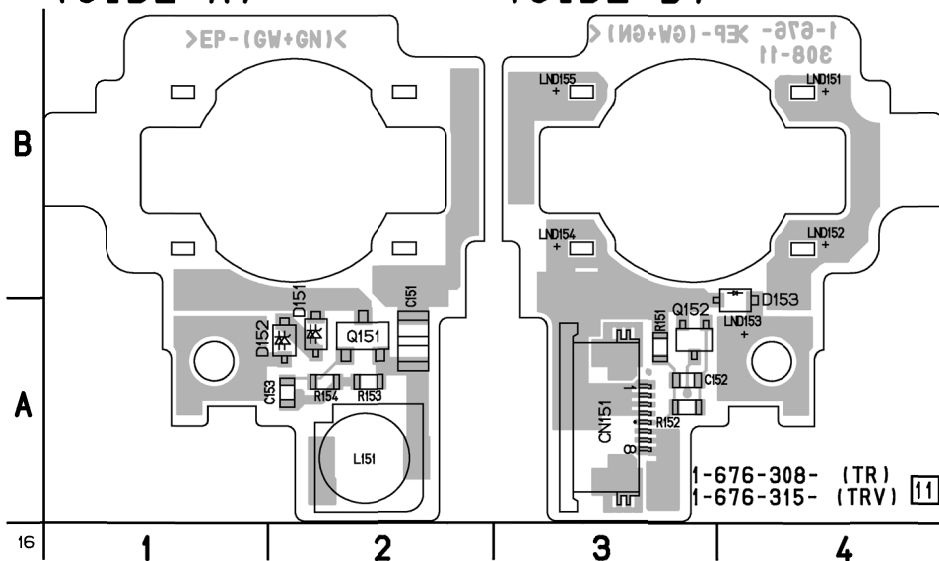


VL-28/29 (VIDEO LIGHT) PRINTED WIRING BOARD

— Ref. No. VL-28/29 Board; 7,000 Series —

VL-28 BOARD (TR MODEL)
VL-29 BOARD (TRV MODEL)
(SIDE A)

VL-28 BOARD (TR MODEL)
VL-29 BOARD (TRV MODEL)
(SIDE B)



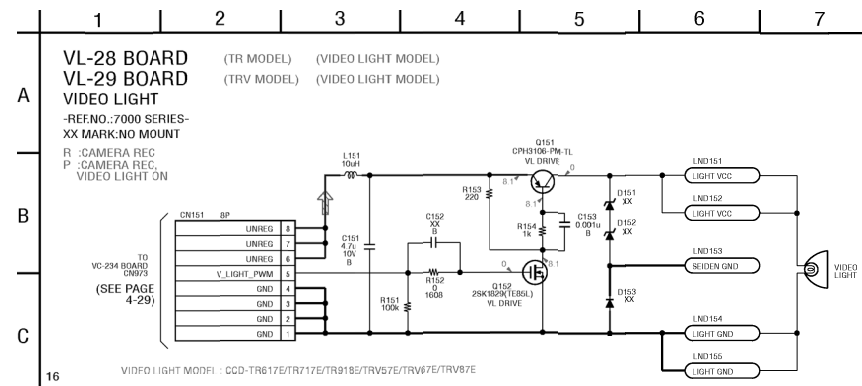
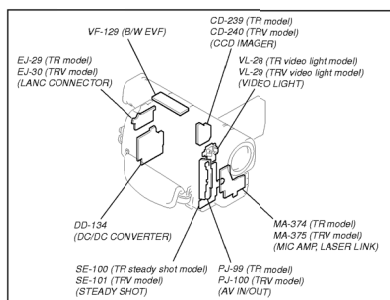
For printed wiring board

- Refer to page 4-94 for location.
- Chip parts

Transistor

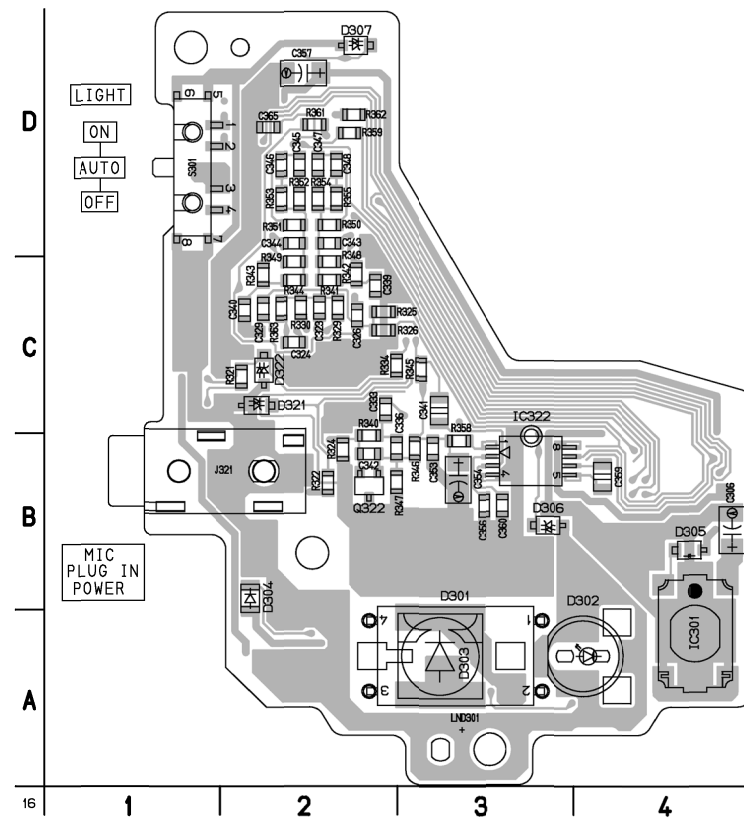
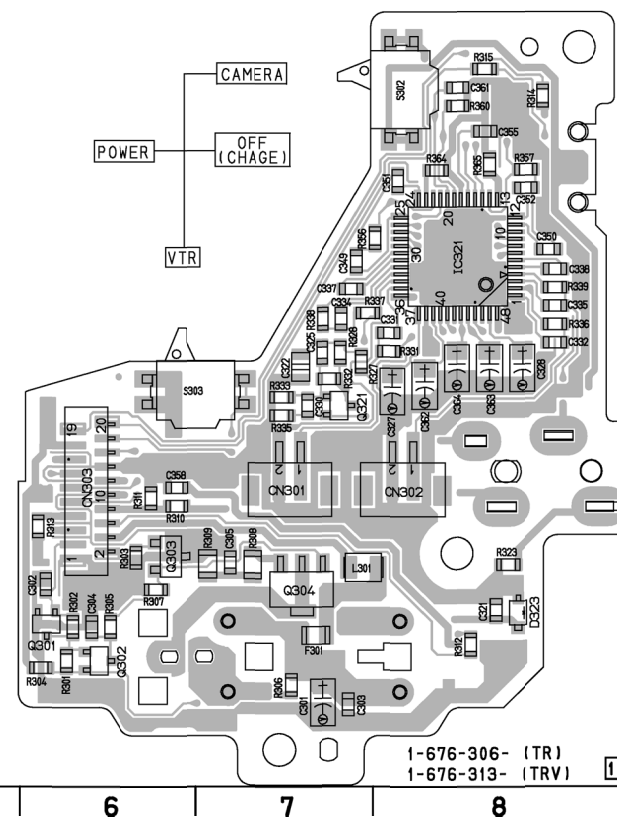
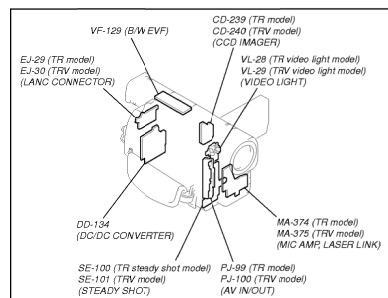


There are few cases that the part printed on this diagram isn't mounted in this model.



MA-374/375 (MIC AMP) PRINTED WIRING BOARD

— Ref. No. MA-374/375 Board; 3,000 Series —

MA-374 BOARD (SIDE A) (TR MODEL)
MA-375 BOARD (SIDE A) (TRV MODEL)**MA-374 BOARD (SIDE B)** (TR MODEL)
MA-375 BOARD (SIDE B) (TRV MODEL)1-676-306- (TR)
1-676-313- (TRV)**For printed wiring board**

- Refer to page 4-94 for location.
- Chip parts

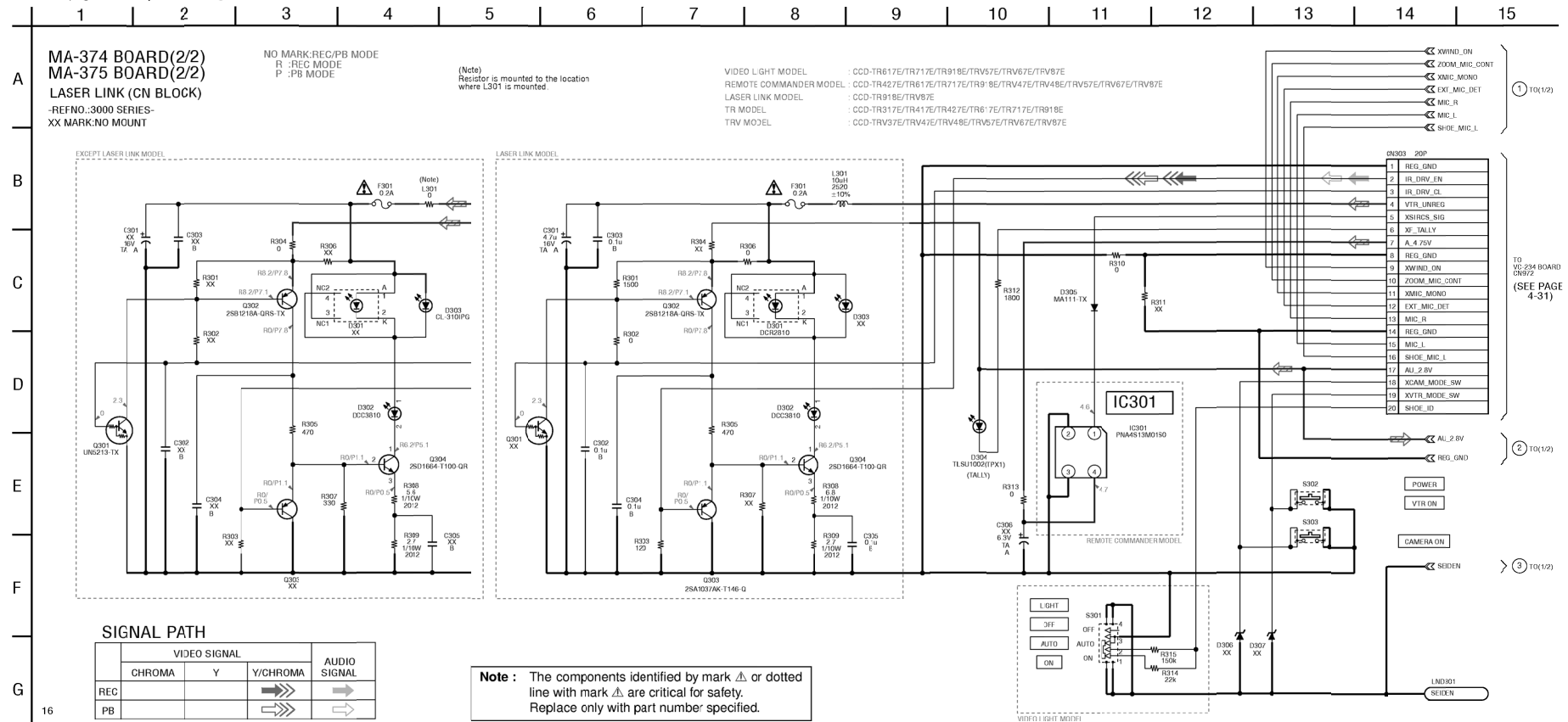
Transistor

There are few cases that the part printed on this diagram isn't mounted in this model.

- Refer to page 4-65 for printed wiring board.

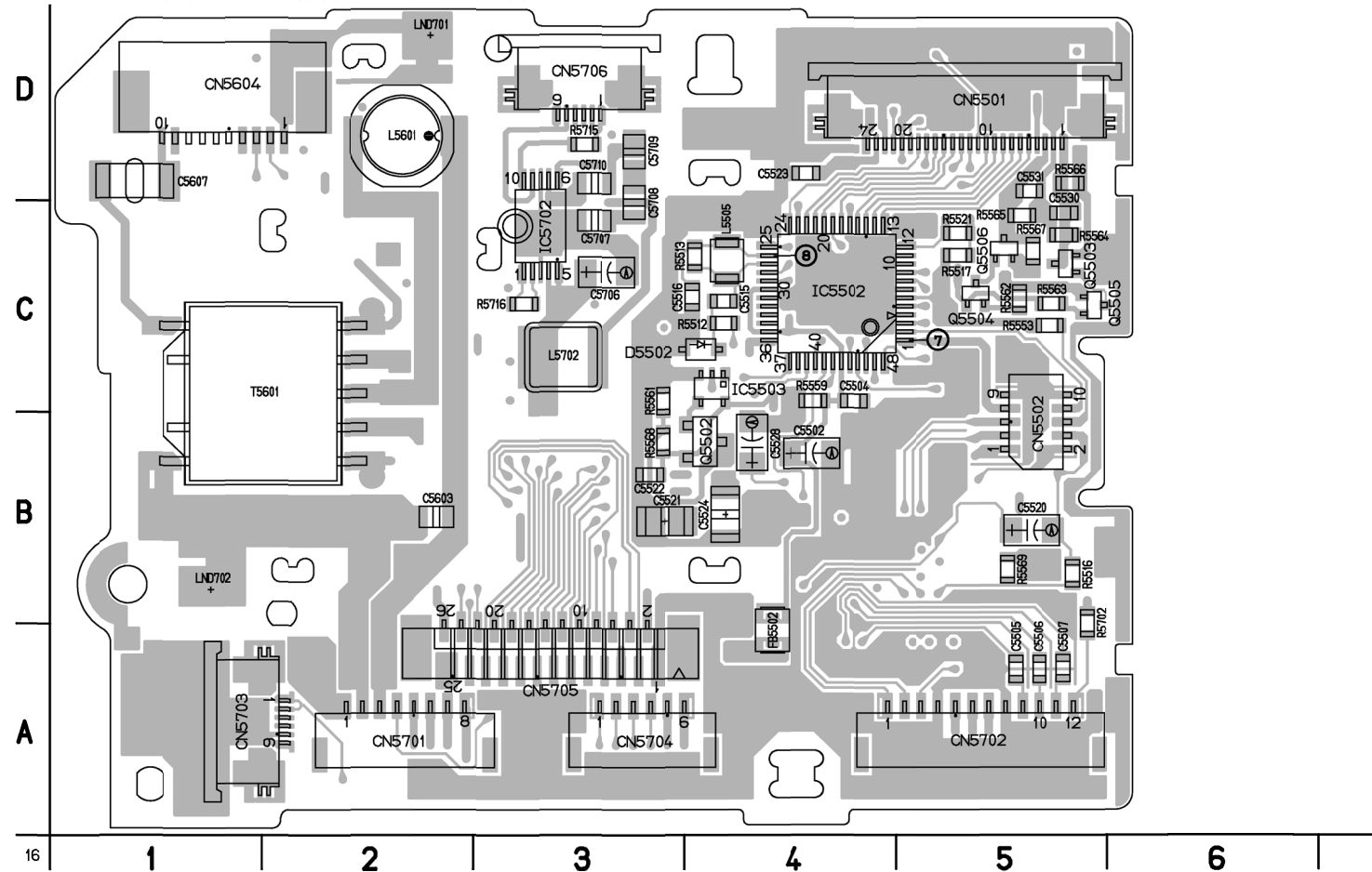


- Refer to page 4-65 for printed wiring board.



— Ref. No. PD-117 Board; 10,000 Series —

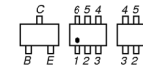
PD-117 BOARD (SIDE A)



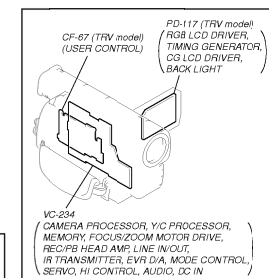
For printed wiring board

- Refer to page 4-94 for location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts

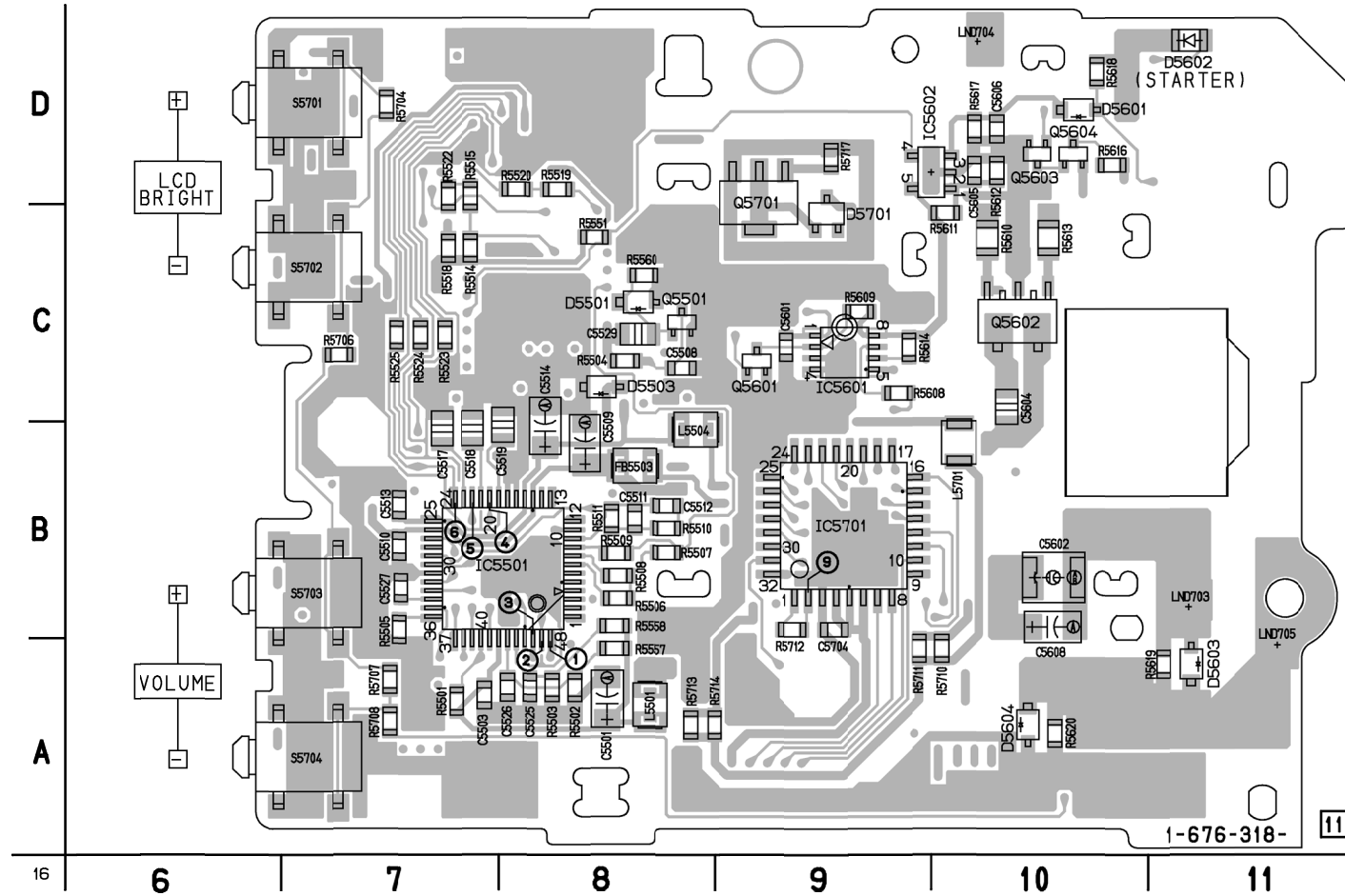
Transistor



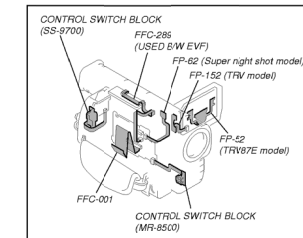
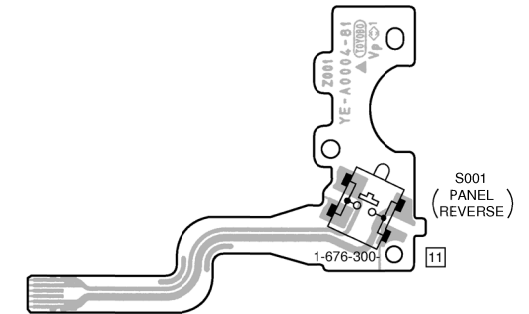
There are few cases that the part printed on this diagram isn't mounted in this model.



PD-117 BOARD (SIDE B)

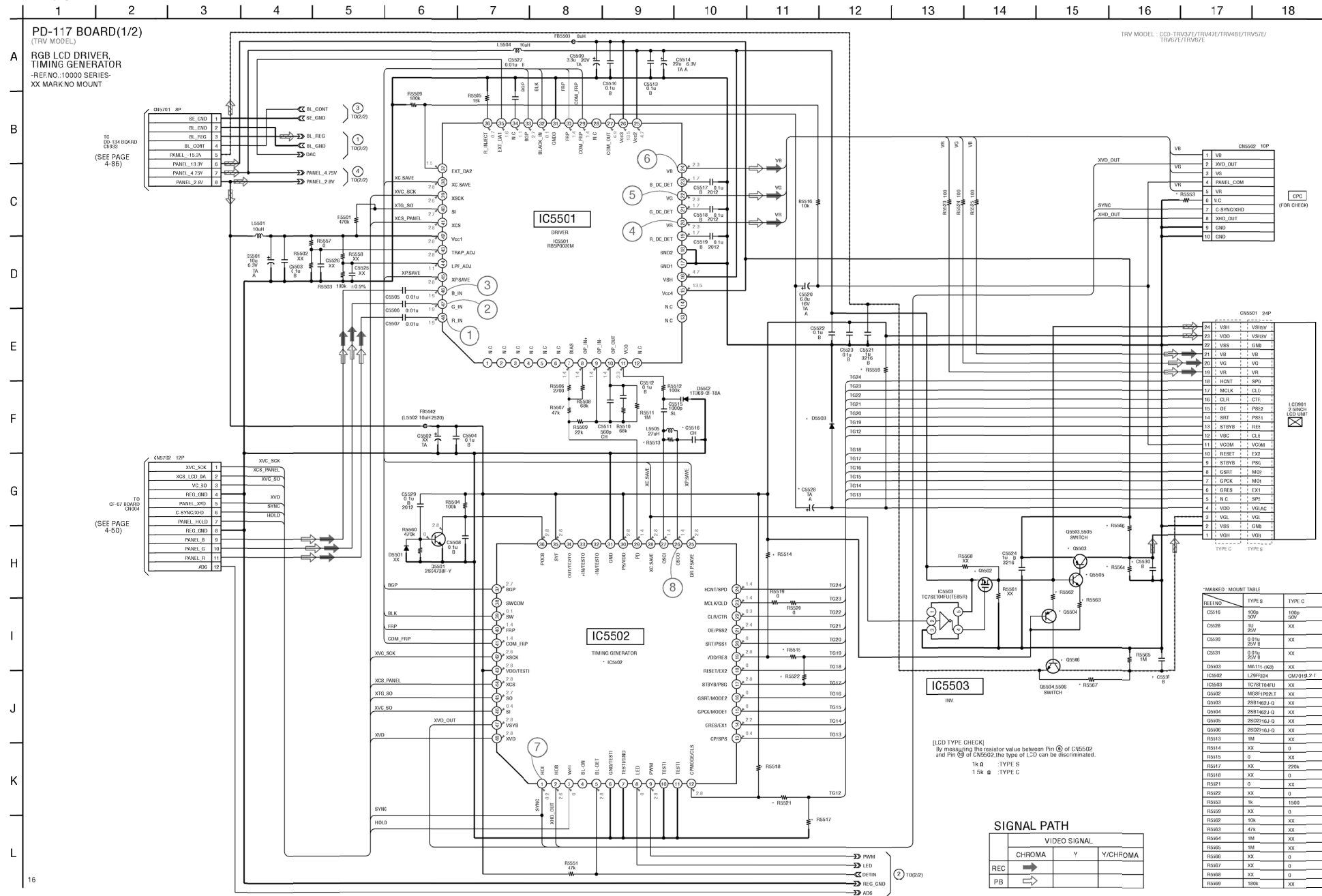


FP-152 FLEXIBLE BOARD



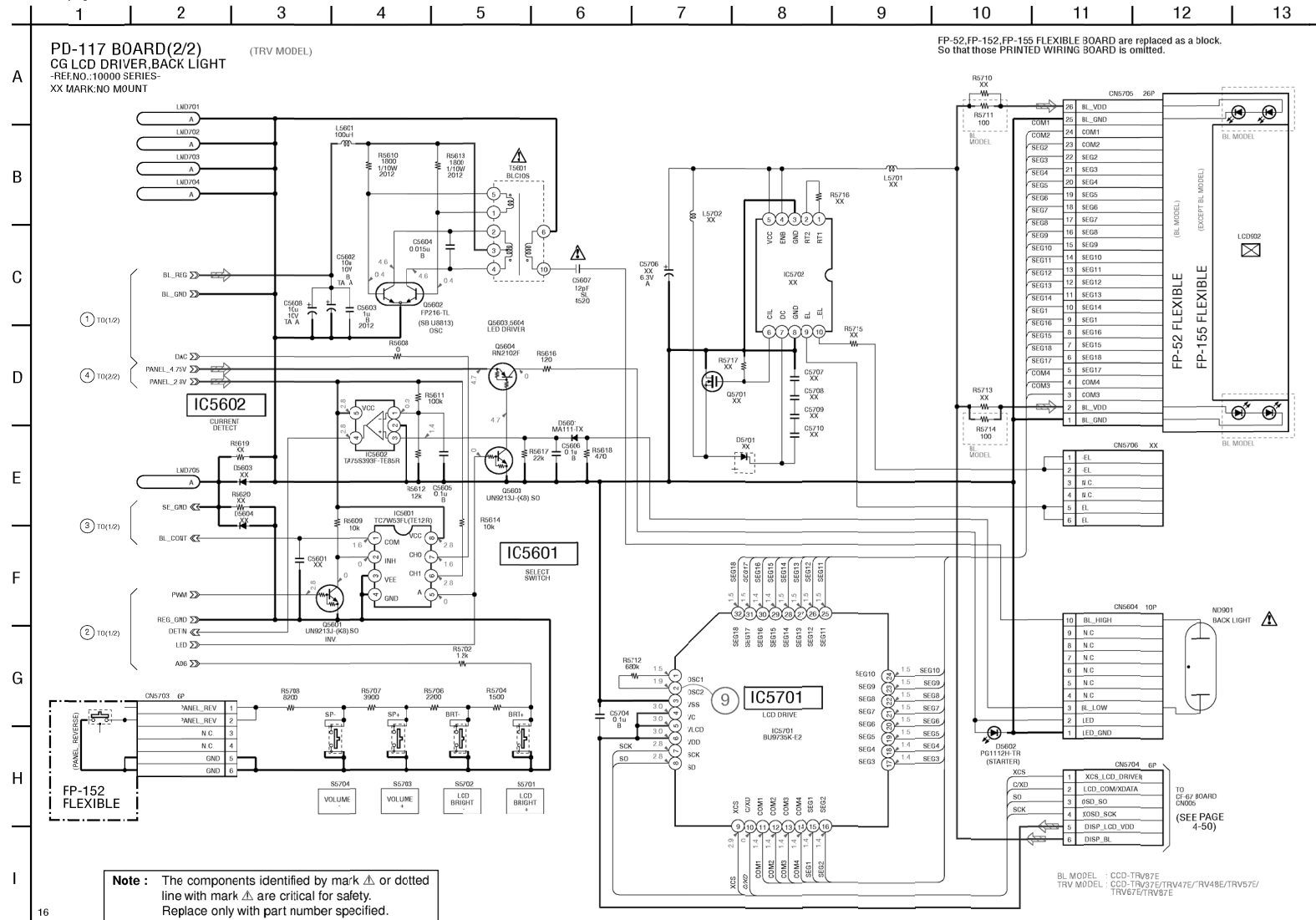
For Schematic Diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-90 for waveforms.



For Schematic Diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-90 for waveform.

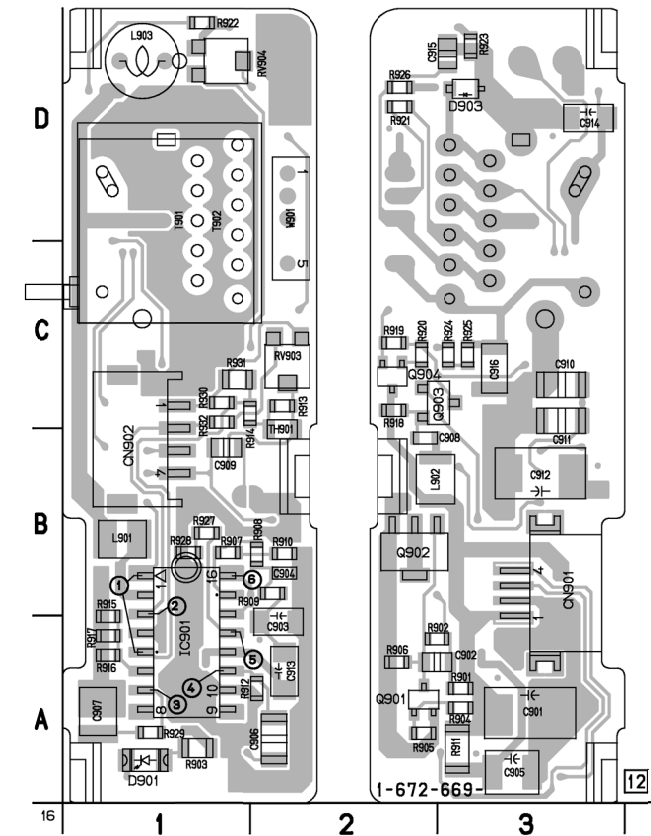


VF-129 (B/W EVF) PRINTED WIRING BOARD

— Ref. No. VF-129 Board; 3,000 Series —

VF-129 BOARD
(SIDE A)

VF-129 BOARD
(SIDE B)



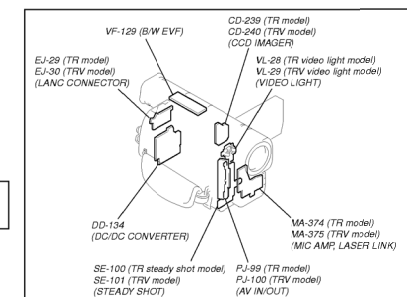
For printed wiring board

- Refer to page 4-95 for location.
- Chip parts

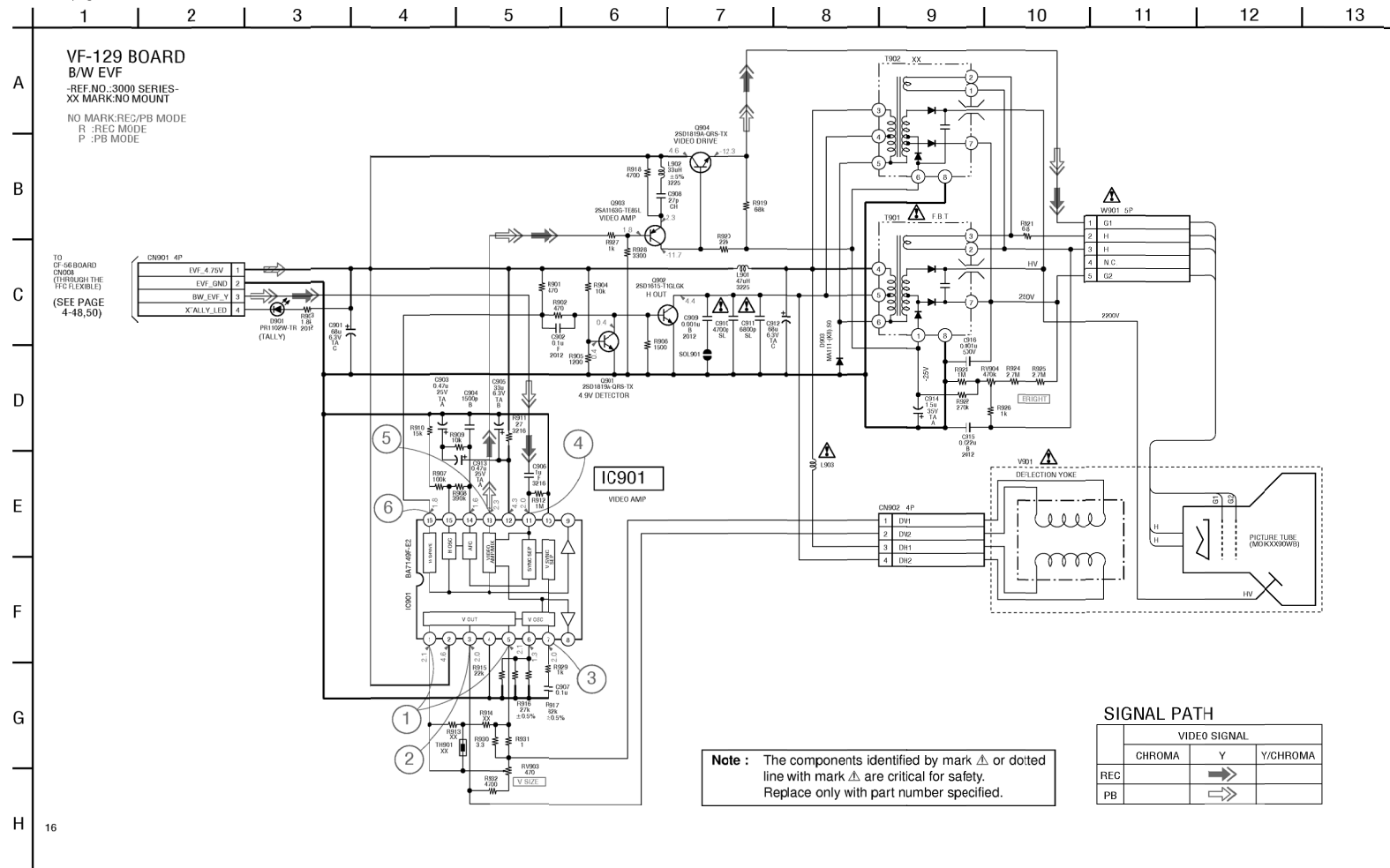
Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.

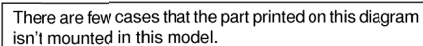


- Refer to page 4-90 for waveforms.



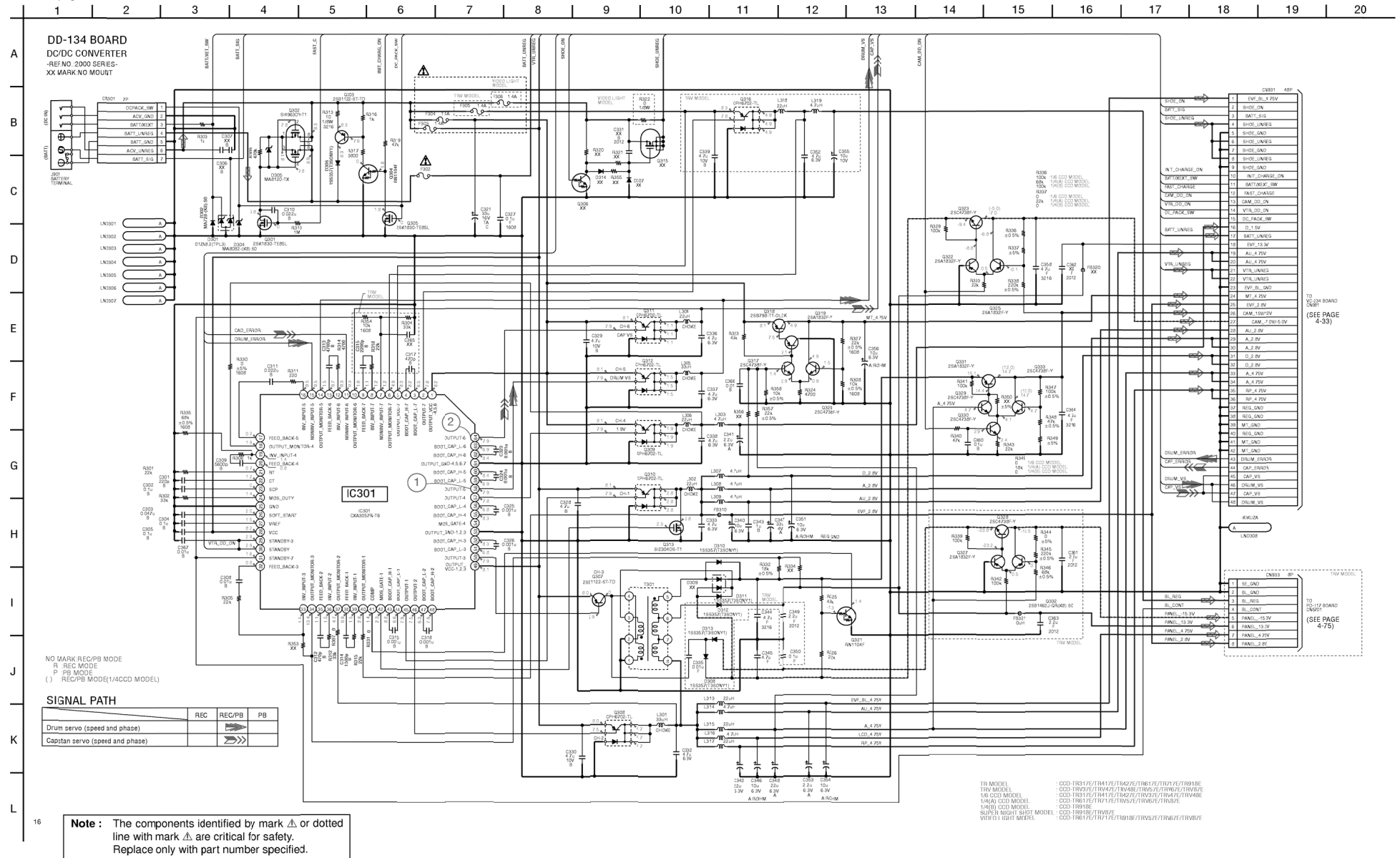
— Ref. No. DD-134 Board; 2,000 Series —

DD-134 BOARD (SIDE B)



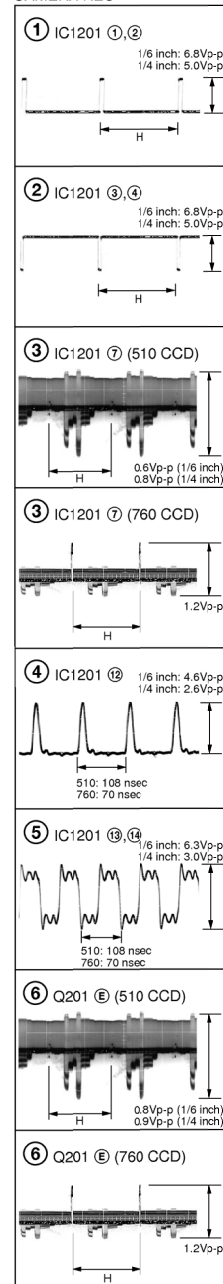
For Schematic Diagram

Refer to page 4-90 for waveforms.

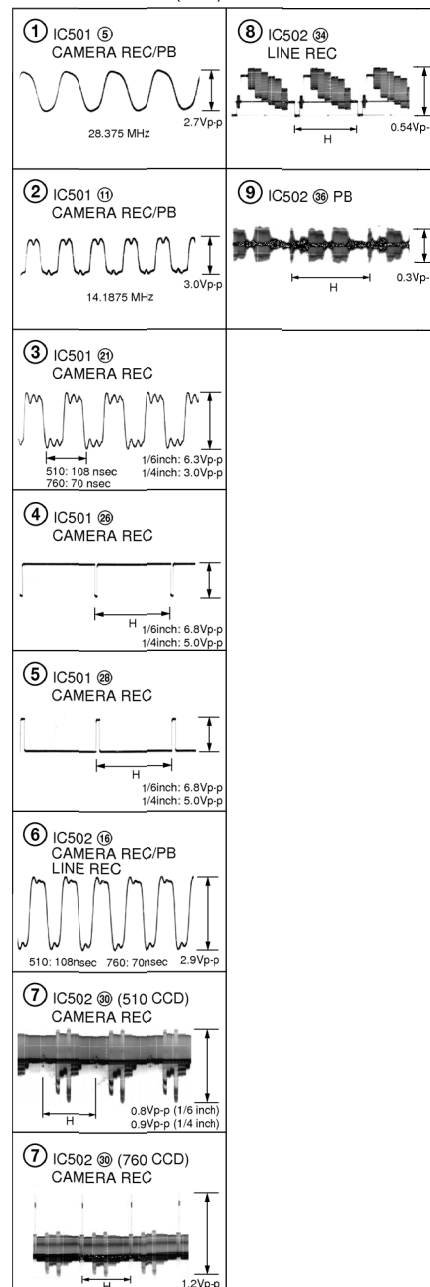


4-3. WAVEFORMS

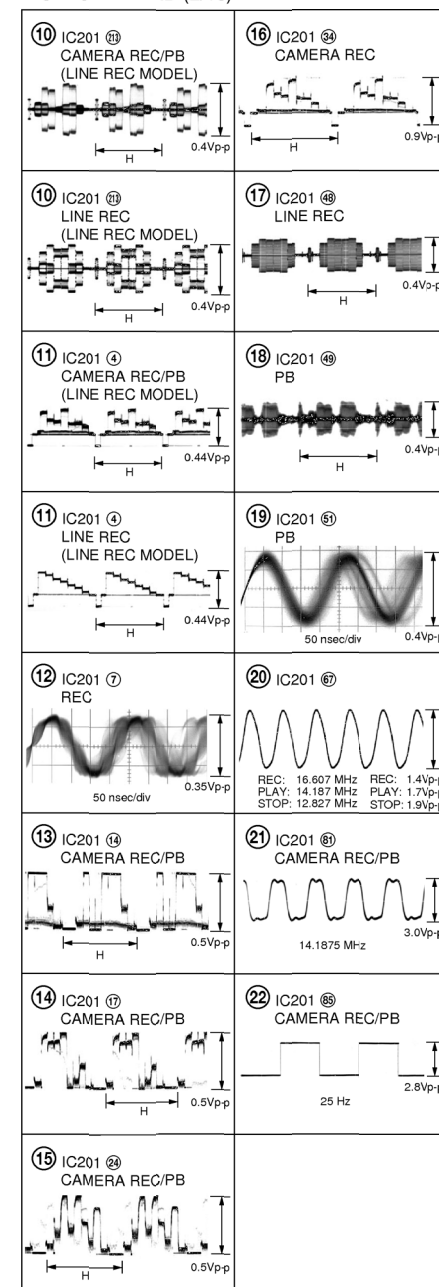
CD-239/240 BOARD CAMERA REC



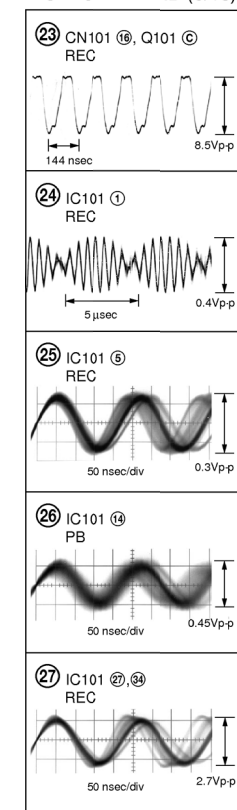
VC-234 BOARD (1/13)



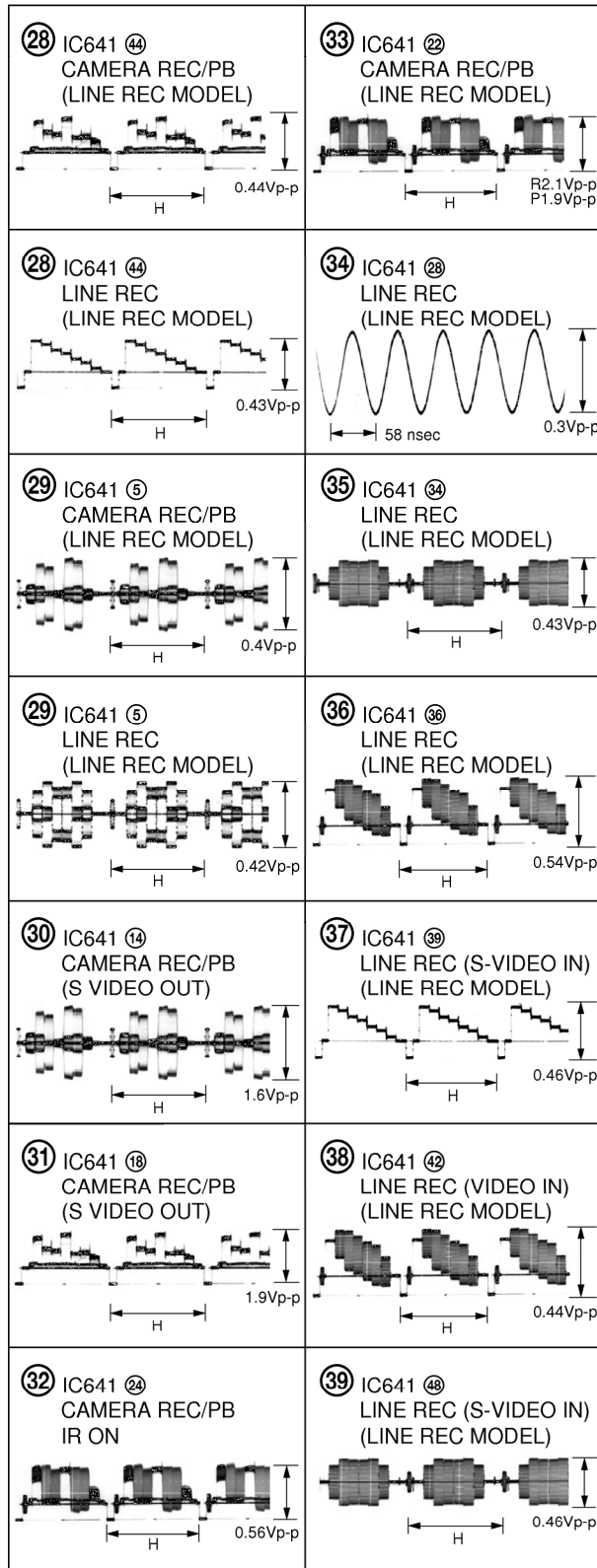
VC-234 BOARD (2/13)



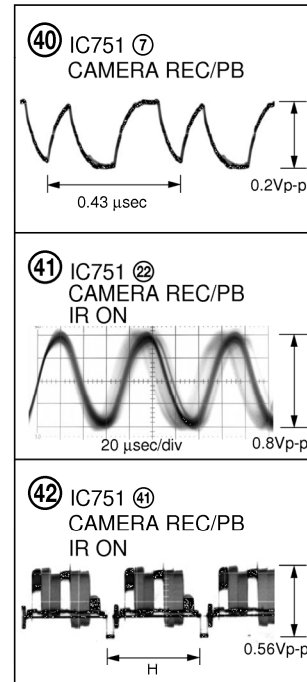
VC-234 BOARD (5/13)



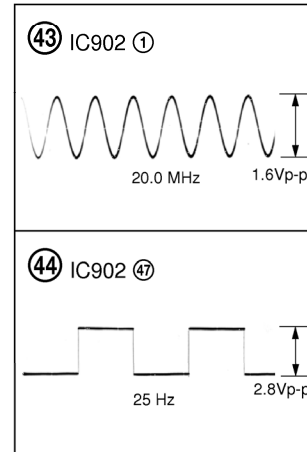
VC-234 BOARD (6/13)



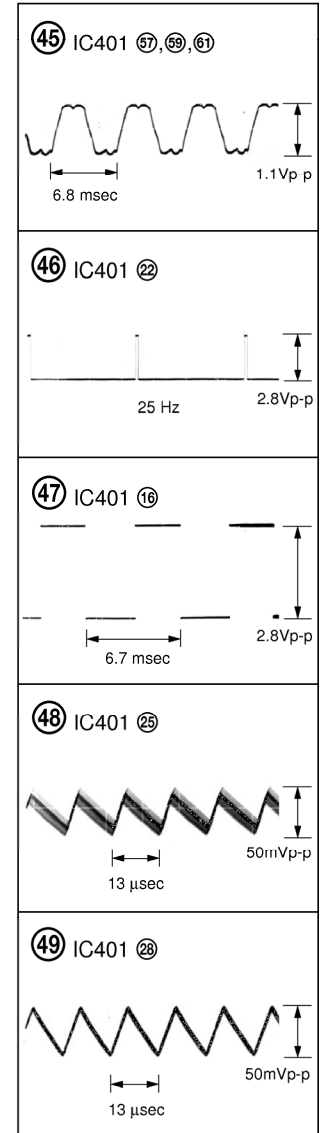
VC-234 BOARD (7/13)



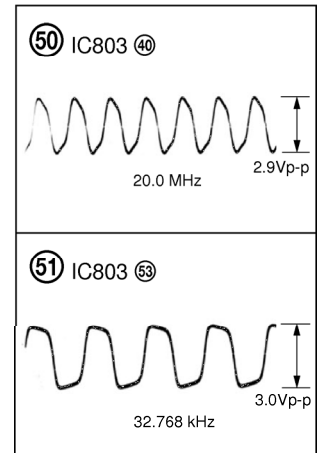
VC-234 BOARD (9/13)
CAMERA REC/PB



VC-234 BOARD (10/13)
CAMERA REC/PB

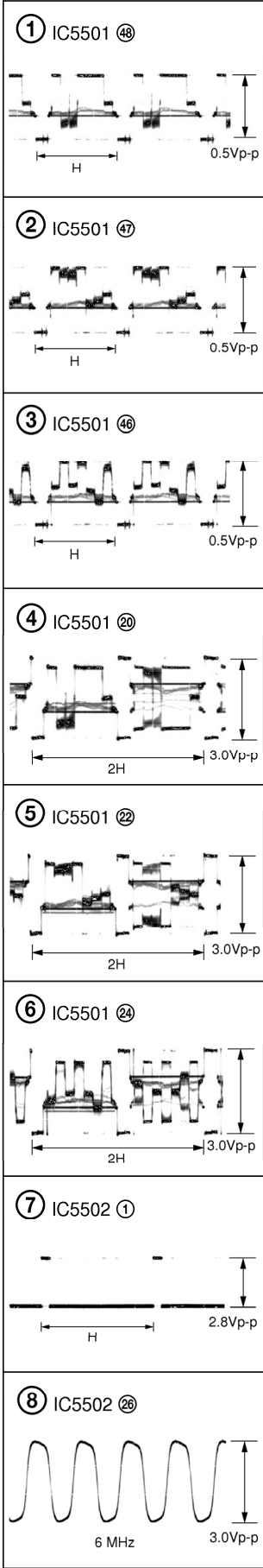


VC-234 BOARD (11/13)
CAMERA REC/PB

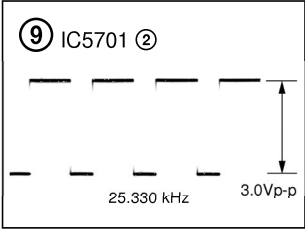


CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

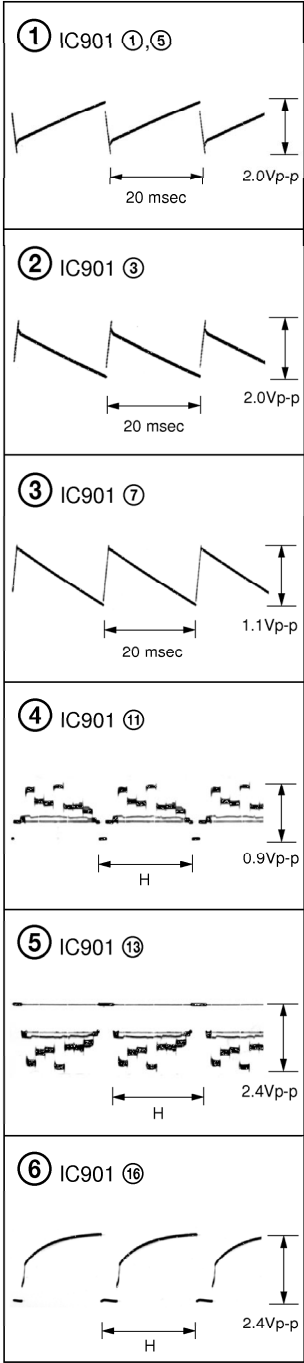
PD-117 BOARD (1/2)



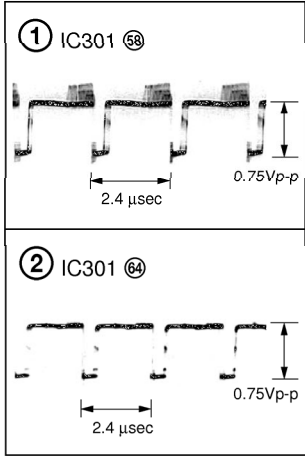
PD-117 BOARD (2/2)



VF-129 BOARD
CAMERA REC/PB



DD-134 BOARD
CAMERA REC/PB



4-4. MOUNTED LOCATION

CD-239/240 BOARD (SIDE A)

C201 A-1
C202 B-1
C203 B-1
C204 A-1
C205 A-1

CN201 B-2

L201 A-2

LND201 A-2

Q201 B-1

R201 B-2
R202 B-1
R203 B-1
R204 A-1

CD-239/240 BOARD (SIDE B)

IC201 A-3

VC-234 BOARD (SIDE A)

C104 A-5	C570 F-5	CN972 A-1	R121 B-5	R565 F-4	R878 C-7
C108 B-4	C571 F-5	CN974 A-2	R122 C-5	R566 F-4	R879 B-7
C109 B-5	C572 F-4	CN975 B-7	R127 B-4	R567 G-4	R880 B-7
C110 B-5	C573 F-4	CN976 A-6	R128 C-4	R568 F-4	R881 C-7
C111 B-5	C642 C-1	CN977 F-9	R201 E-9	R569 F-4	R882 C-7
C112 B-5	C643 C-2	CN978 A-7	R202 E-9	R570 F-4	R887 B-7
C113 A-4	C650 C-2	CN979 A-8	R206 F-6	R571 F-4	R888 C-7
C114 A-5	C651 C-2	CN981 B-9	R207 E-6	R572 F-5	R889 C-7
C115 B-4	C664 C-1	CN983 D-9	R208 E-8	R573 F-4	R890 C-7
C116 B-5	C671 C-2		R209 E-9	R574 E-4	R891 C-7
C117 B-5	C672 C-2	D551 G-4	R210 E-7	R575 E-4	R892 C-8
C118 B-4	C673 C-2	D973 G-9	R211 E-7	R576 E-4	R901 D-4
C120 B-5	C701 A-2		R212 E-7	R577 E-4	R902 D-4
C121 B-4	C702 A-2	FB101 A-4	R213 E-7	R578 E-5	R903 D-5
C123 B-4	C703 B-2	FB102 A-5	R214 E-8	R641 C-2	R905 D-5
C125 C-5	C704 B-2	FB201 G-6	R215 E-8	R642 C-2	R906 C-5
C131 B-4	C705 A-1	FB502 F-5	R216 E-7	R643 C-1	R907 C-5
C133 B-5	C706 A-1	FB503 F-5	R217 E-7	R644 C-2	R908 C-4
C134 B-5	C707 B-2	FB504 F-6	R218 E-7	R645 C-2	R909 C-5
C135 C-5	C708 A-2	FB505 F-6	R219 E-7	R646 C-1	R910 C-5
C136 C-4	C709 B-1	FB641 C-3	R220 E-8	R647 C-2	R911 C-5
C137 B-4	C710 B-1		R221 E-8	R649 C-1	R991 D-9
C138 C-4	C711 B-1	IC101 B-4	R225 E-8	R703 A-2	R912 D-5
C139 C-4	C712 B-1	IC201 F-7	R226 E-9	R705 B-1	R915 C-5
C141 B-5	C713 A-2	IC202 G-6	R228 E-9	R706 B-1	R916 E-5
C160 C-4	C714 B-2	IC502 F-6	R230 E-8	R707 A-2	R917 D-5
C206 E-9	C715 A-1	IC552 F-4	R231 E-8	R707 A-2	R918 C-6
C211 E-9	C716 B-2	IC701 B-3	R233 E-8	R708 A-2	R919 C-6
C212 D-8	C717 A-2	IC803 C-8	R234 E-6	R710 B-2	R920 C-6
C216 E-9	C718 C-3	IC902 D-5	R235 E-6	R711 B-2	R922 D-6
C217 D-8	C719 A-2		R236 D-7	R712 A-2	R923 D-6
C218 D-6	C720 B-3	L108 C-4	R237 E-7	R713 A-3	R924 D-6
C219 E-7	C721 B-2	L203 D-8	R238 D-7	R714 B-3	R925 D-6
C220 D-7	C722 B-3	L291 C-4	R239 E-7	R715 B-3	R930 D-6
C221 D-7	C723 A-3	L553 E-5	R240 E-7	R716 A-3	R931 D-6
C222 D-7	C724 B-3	L642 C-3	R241 D-7	R717 A-3	R932 D-6
C223 E-7	C725 B-3	L644 C-3	R242 D-7	R718 B-3	R933 D-6
C224 E-8	C726 C-3		R243 E-7	R720 A-3	R934 D-6
C225 E-8	C727 C-3	LND101 B-6	R244 E-7	R721 B-2	R973 F-9
C226 E-8	C728 A-3	LND102 C-6	R245 D-7	R722 B-2	R974 F-9
C227 E-8	C729 B-3	LND103 C-4	R246 D-8	R723 B-2	R984 D-9
C228 E-8	C730 A-3		R247 E-8	R724 B-2	R985 D-6
C231 D-8	C731 B-3	Q101 B-5	R248 D-8	R725 B-1	R986 D-6
C232 E-8	C732 B-3	Q102 B-5	R249 E-8	R726 B-1	R987 D-9
C236 F-8	C733 A-3	Q103 B-5	R250 F-8	R727 R-2	R988 D-6
C243 E-6	C734 B-3	Q104 B-5	R254 E-6	R728 C-3	R989 D-6
C245 F-6	C735 A-3	Q202 E-6	R255 E-6	R729 B-2	R990 D-9
C246 E-9	C736 B-3	Q204 E-7	R256 E-6	R730 B-3	
C247 F-9	C737 B-3	Q205 E-7	R257 E-6	R731 C-3	X801 D-8
C249 F-6	C738 B-3	Q206 E-7	R258 G-9	R732 B-3	X802 D-7
C250 G-9	C739 A-3	Q207 E-7	R259 F-9	R813 C-8	X901 E-5
C251 G-9	C740 A-3	Q208 E-8	R263 G-9	R814 C-8	
C256 F-6	C741 A-3	Q209 E-8	R273 G-9	R815 C-8	
C259 G-9	C742 B-3	Q212 E-6	R282 G-9	R816 C-8	
C261 G-6	C743 B-3	Q401 A-9	R401 A-7	R817 C-8	
C402 A-8	C744 B-3	Q551 G-4	R402 A-7	R818 C-8	
C410 A-8	C745 A-3	Q554 E-4	R403 A-3	R819 D-8	
C414 A-9	C746 B-2	Q641 C-3	R404 A-3	R820 B-8	
C506 F-5	C747 B-2	Q642 C-2	R405 A-7	R821 C-8	
C508 F-6	C815 B-8	Q643 C-2	R406 A-3	R822 C-8	
C511 F-5	C817 B-8	Q644 C-1	R407 A-8	R825 C-8	
C513 F-5	C819 D-8	Q701 B-1	R411 A-9	R831 D-8	
C514 F-5	C820 C-7	Q703 B-1	R414 A-8	R832 D-8	
C515 F-5	C821 C-7	Q704 B-1	R416 A-9	R834 B-8	
C516 E-5	C822 D-7	Q706 B-1	R432 A-8	R837 D-8	
C517 E-5	C823 C-7	Q707 A-1	R436 A-8	R838 D-8	
C518 E-5	C824 B-7	Q709 A-1	R504 F-5	R839 D-8	
C519 E-5	C825 C-7	Q710 B-2	R505 F-5	R840 D-8	
C520 E-5	C826 C-7	Q711 B-2	R506 F-6	R843 B-8	
C521 E-6	C901 D-4	Q712 C-3	R508 F-6	R844 B-8	
C522 E-6	C902 D-4	Q713 C-3	R509 F-5	R845 B-8	
C523 E-6	C903 D-4	Q974 D-9	R515 E-6	R847 D-8	
C524 E-6	C904 D-4	Q975 D-9	R516 E-6	R848 B-8	
C527 F-5	C908 E-5		R517 E-6	R849 D-8	
C528 F-6	C909 D-5	R101 A-5	R551 G-4	R866 D-7	
C551 G-4	C910 D-5	R102 A-5	R552 E-4	R867 D-7	
C552 G-4	C911 C-6	R105 B-5	R553 G-4	R868 B-8	
C554 G-4	C912 C-6	R110 B-5	R554 F-4	R869 B-7	
C559 F-4	C913 C-6	R111 B-5	R555 G-5	R870 B-7	
C560 F-4	C914 D-6	R112 B-5	R556 F-4	R871 D-7	
C562 F-4	C971 D-9	R113 B-5	R557 G-5	R872 D-7	
C564 F-5	C972 D-9	R114 B-4	R560 E-4	R873 D-7	
C565 E-4		R115 B-5	R561 F-4	R874 B-7	
C566 F-4	CN101 A-4	R116 B-5	R562 F-4	R875 B-7	
C567 F-5	CN501 E-5	R117 B-5	R563 F-4	R876 C-7	
C568 E-4	CN551 G-5	R120 B-4	R564 F-4	R877 C-7	

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

VC-234 BOARD (SIDE B)

C101	A-14	C436	A-11
C102	A-15	C501	F-14
C103	B-14	C502	E-14
C105	A-15	C503	F-14
C106	B-15	C504	F-14
C107	B-14	C505	F-13
C119	A-15	C507	F-13
C126	B-15	C509	F-13
C128	B-15	C510	G-13
C130	B-14	C512	F-13
C142	B-14	C525	F-14
C143	A-15	C526	E-14
C145	A-16	C553	E-15
C146	B-14	C556	E-15
C147	A-16	C561	F-15
C148	B-15	C569	F-15
C149	B-16	C641	C-16
C150	B-16	C644	C-16
C151	B-15	C645	C-18
C152	B-15	C646	C-17
C153	B-16	C647	C-16
C154	A-16	C648	C-17
C155	A-16	C649	C-17
C156	C-15	C652	C-17
C157	B-15	C653	C-17
C158	C-15	C654	C-17
C159	C-15	C655	C-17
C201	D-11	C656	C-16
C202	D-11	C657	C-18
C203	E-10	C658	D-15
C207	E-12	C659	C-18
C210	E-11	C660	C-18
C213	E-11	C661	C-18
C233	E-12	C662	B-18
C234	E-12	C663	B-17
C237	E-11	C665	B-17
C238	E-11	C666	B-17
C239	E-13	C667	B-17
C240	E-13	C668	B-17
C241	E-10	C669	B-17
C242	E-10	C704	B-17
C244	F-10	C751	A-17
C252	G-10	C752	A-17
C253	G-12	C752	A-17
C254	F-12	C753	A-17
C255	E-12	C754	A-17
C257	G-12	C755	A-17
C258	F-12	C756	A-18
C260	G-11	C758	A-17
C262	F-13	C759	B-17
C263	G-11	C760	B-17
C265	G-11	C761	B-17
C266	G-11	C762	B-17
C291	C-15	C763	B-17
C292	C-15	C765	A-17
C293	D-15	C766	A-18
C401	B-11	C767	B-17
C403	B-12	C768	B-18
C404	B-12	C769	A-18
C405	B-12	C770	A-18
C406	B-11	C771	B-18
C407	B-11	C772	A-18
C408	B-10	C773	B-18
C409	A-12	C774	A-18
C411	A-12	C775	A-17
C412	A-12	C777	A-18
C413	B-12	C778	A-18
C415	B-11	C781	A-18
C416	B-11	C782	A-16
C417	B-12	C801	C-11
C418	B-11	C802	C-12
C419	A-12	C803	C-11
C420	B-11	C804	B-11
C421	B-12	C805	B-11
C422	A-11	C806	C-12
C423	A-11	C807	C-11
C424	A-12	C809	B-11
C425	A-11	C810	B-11
C427	A-11	C811	B-11
C428	A-12	C813	B-11
C429	A-12	C814	B-11
C430	A-12	C818	B-11
C431	A-11	C907	D-13
C433	A-11	C915	D-13
C434	A-11	C973	G-15
C435	A-11	C974	G-15

LOCATION

CF-66 BOARD (SIDE A)

C001	B-6	R013	B-3
C002	B-6	R014	B-2
C003	C-5	R015	C-3
C004	C-4	R016	B-4
C008	D-6	R017	B-4
		R018	B-2
CN010	D-5	R019	C-3
		R020	B-4
D001	A-1	R021	C-2
D003	D-8	R025	C-2
D004	B-4	R032	B-1
D005	B-6	R033	B-1
D006	A-6	R038	D-4
D007	B-7	R039	D-4
D008	D-6	R040	C-4
D009	C-6	R041	C-4
		R042	C-6
IC001	C-5	R043	C-6
		R044	D-6
L001	D-4	R045	D-6
L004	C-6	R046	D-6
L005	B-6	R047	D-6
Q001	D-4	S001	B-4
Q002	D-6	S002	D-8
Q003	C-6	S003	B-5
		S005	D-8
R001	D-4	S008	B-9
R002	D-6	S009	B-1
R003	C-6	S010	B-3
R004	D-6	S011	D-9
R009	D-6	S012	C-1
R010	D-6	S014	B-5
R011	C-5	S015	B-6
R012	B-4	S016	B-7

CF-66 BOARD (SIDE B)

BH001	B-13	R005	B-15
		R006	B-16
BZ001	B-17	R007	B-16
BZ002	C-17	R008	B-16
		R022	C-16
C005	D-13	R023	C-16
C006	D-12	R026	C-16
C007	D-11	R027	D-12
C009	C-15	R028	D-12
		R029	D-12
CN001	C-13	R030	D-12
CN002	A-18	R034	C-16
CN006	D-13	R035	D-12
CN007	D-15	R036	D-12
CN008	C-16	R037	D-11
		R048	D-16
D002	C-12		
		S006	C-11
L002	D-13	S007	D-11
L003	D-11		
Q004	D-12		
Q005	D-12		
Q006	D-12		

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

CF-67 BOARD (SIDE A)

BH001	D-5	R020	A-3
		R022	B-6
D001	A-1	R027	B-5
D004	A-4	R036	B-5
D007	A-5	R043	C-1
		S001	A-3
LND001	A-6		
		S002	B-3
R002	A-4	S004	A-5
R004	B-4	S005	B-4
R006	A-4	S006	B-6
R008	B-4	S008	B-6
R013	B-5	S009	A-7
R014	A-5	S011	A-6
R017	A-5	S012	B-3
R019	B-6	S014	B-5

CF-67 BOARD (SIDE B)

C001	D-12	Q004	C-13
C002	D-10	Q005	C-12
C003	D-10	Q006	D-12
C004	D-12		
C005	C-13	R001	C-13
C006	C-12	R003	C-9
C007	D-12	R005	C-9
C008	C-13	R007	B-9
C009	C-12	R009	C-10
		R010	C-10
CN001	B-11	R011	C-10
CN002	A-14	R012	C-9
CN003	D-11	R015	C-10
CN004	C-14	R016	C-10
CN005	B-14	R018	C-9
CN006	D-12	R021	D-9
CN007	C-12	R023	C-13
CN008	D-13	R024	D-12
CN009	B-13	R026	D-9
		R028	C-13
D002	D-11	R029	C-13
D003	B-9	R030	D-12
D005	D-10	R031	D-12
D006	D-10	R032	C-13
D008	D-11	R034	D-9
D009	D-10	R035	D-9
		R037	C-13
JL001	C-11	R038	C-13
JL002	D-11	R039	C-12
		R040	C-12
L001	D-12	R041	C-12
L002	C-13	R042	C-13
L003	D-12	R044	C-13
		R048	C-12
LND002	A-13		
		S003	C-8
Q001	B-13	S007	C-8
Q002	C-10	S010	D-8
Q003	C-10	S013	E-8

EJ-29/30 BOARD (SIDE A)

J251	B-4
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EJ-29/30 BOARD (SIDE B)

CN251	A-8
CN252	B-8
CN253	A-7
D251	B-6
D252	A-6
D253	B-6
D254	A-7
D255	B-7
D256	B-6
D257	B-6
FB251	B-6
FB252	A-6
FB253	B-6
LND251	A-6
R251	B-8
R252	B-8
R253	B-7
R254	B-7
R255	A-7
R256	A-7
R256	B-8
R257	A-8
R259	B-7
S251	B-7

PJ-99/100 BOARD (SIDE A)

J101	C-1
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PJ-99/100 BOARD (SIDE B)

C101	C-4
C102	D-4
C103	B-4
C104	A-3
C105	B-3
C106	B-4
C107	E-3
C108	E-4
CN101	C-3
D101	D-4
D102	E-4
D103	E-4
D104	E-3
D105	B-4
L101	C-3
L102	C-4
L104	B-3
L105	B-3
LND101	B-4
Q101	E-3
Q102	D-3
R102	D-3
R103	D-4
R104	D-3
R105	D-3
R108	E-4
R109	C-3
VDR101	C-4
VDR102	A-3

SE-100/101 BOARD (SIDE A)

C453	C-3
C454	D-3
C460	C-3
C465	A-2
C466	A-2
CN451	A-3
J451	A-2
L451	B-3
L452	A-3
L453	A-2
R461	A-3
SE451	C-3
SE452	E-4
VDR451	A-3
VDR452	A-2

SE-100/101 BOARD (SIDE B)

C451	B-6
C452	D-7
C455	C-7
C456	C-7
C457	C-7
C459	C-7
C461	D-6
C462	B-7
C463	C-6
C464	B-7
IC451	C-7
LND451	A-7
R451	B-6
R452	D-7
R453	D-7
R454	B-6
R455	C-6
R456	C-7
R457	C-7
R458	C-6
R459	C-6
R460	B-7

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

VL-29 BOARD (SIDE A)

C151	A-2
C153	A-2
D151	A-2
D152	A-2
L151	A-2
Q151	A-2
R153	A-2
R154	A-2

VL-29 BOARD (SIDE B)

C152	A-3
CN151	A-3
D153	A-4
LND151	B-4
LND152	B-4
LND153	A-4
LND154	B-3
LND155	B-3
Q152	A-3
R151	A-3
R152	A-3

MA-374/375 BOARD (SIDE A)

C306	B-4	J321	B-1
C323	C-2		
C324	C-2	LND301	A-3
C326	C-2		
C329	C-2	Q322	B-2
C333	C-2		
C336	B-2	R321	C-2
C339	C-2	R322	B-2
C340	C-2	R324	B-2
C341	C-3	R325	C-2
C342	B-2	R326	C-2
C343	D-2	R329	C-2
C344	D-2	R330	C-2
C345	D-2	R334	C-2
C346	D-2	R340	B-2
C347	D-2	R342	C-2
C348	D-2	R343	C-2
C353	B-3	R344	C-2
C354	B-3	R345	C-3
C356	B-3	R346	B-3
C357	E-2	R347	B-2
C359	B-4	R348	C-2
C360	B-3	R349	C-2
C365	D-2	R350	D-2
		R351	D-2
D302	A-3	R352	D-2
D303	A-3	R353	D-2
D304	B-2	R354	D-2
D305	B-4	R355	D-2
D306	B-3	R358	B-3
D307	E-2	R359	D-2
D321	C-2	R361	D-2
D322	C-2	R362	D-2
		R363	C-2
IC301	A-4		
IC322	B-3	S301	D-1

MA-374/375 BOARD (SIDE B)

C301	A-7	R301	A-6
C302	B-6	R302	A-6
C303	A-7	R303	B-6
C304	A-6	R304	A-6
C305	B-7	R305	A-6
C321	A-8	R306	A-7
C322	C-7	R307	B-6
C325	C-7	R308	B-7
C327	C-8	R309	B-7
C328	C-8	R310	B-6
C330	C-7	R311	B-6
C331	C-8	R312	A-8
C332	C-9	R313	B-6
C334	C-7	R314	D-8
C335	C-9	R315	E-8
C337	C-7	R323	B-8
C338	C-9	R327	C-7
C349	C-7	R328	C-7
C351	D-8	R331	C-8
C352	D-8	R332	C-7
C355	D-8	R333	C-7
C358	B-6	R335	C-7
C361	D-8	R336	C-9
C362	C-8	R337	C-7
C363	C-8	R338	C-7
C364	C-8	R339	C-9
		R356	D-8
CN301	B-7	R357	D-8
CN302	B-8	R360	D-8
		R364	D-8
D323	A-8	R365	D-8
F301	A-7	S302	D-8
		S303	C-6
IC321	C-8		
L301	B-7		
Q301	A-6		
Q302	A-6		
Q303	B-6		
Q304	B-7		
Q321	C-7		

PD-117 BOARD (SIDE A)

C5502	B-4	R5512	C-4
C5504	C-4	R5513	C-4
C5505	A-5	R5516	B-5
C5506	A-5	R5517	C-5
C5507	A-5	R5521	C-5
C5515	C-4	R5553	C-5
C5516	C-4	R5559	C-4
C5520	B-5	R5561	B-3
C5521	B-3	R5562	C-5
C5522	B-3	R5563	B-3
C5523	D-4	R5563	C-5
C5524	B-4	R5564	C-5
C5528	B-4	R5565	C-5
C5530	C-5	R5566	D-5
C5531	C-5	R5567	C-5
C5706	C-3	R5569	B-5
C5707	C-3	R5702	A-5
C5708	C-3	R5715	D-3
C5709	D-3	R5716	C-3
C5710	D-3		
CN5501	D-5	T5601	C-1
CN5502	B-5		
CN5604	D-1		
CN5701	A-2		
CN5702	A-5		
CN5703	A-1		
CN5704	A-3		
CN5705	A-3		
CN5706	D-3		
D5502	C-4		
FB5502	A-4		
IC5502	C-4		
IC5503	C-4		
IC5702	C-3		

L5505	C-4
L5601	D-2
L5702	C-3
LND701	D-2
LND702	B-1
Q5502	B-4
Q5503	C-5
Q5504	C-5
Q5505	C-5
Q5506	C-5
Q5607	D-1

PD-117 BOARD (SIDE B)

C5501	A-8	R5501	A-7
C5503	A-7	R5502	A-8
C5508	C-8	R5503	A-8
C5509	B-8	R5504	C-8
C5510	B-7	R5505	B-7
C5511	B-8	R5506	B-8
C5512	B-8	R5507	B-8
C5513	B-7	R5508	B-8
C5514	B-8	R5509	B-8
C5517	B-7	R5510	B-8
C5518	B-7	R5511	B-8
C5519	B-8	R5514	C-7
C5525	A-8	R5515	C-7
C5526	A-8	R5518	C-7
C5527	B-7	R5519	D-8
C5529	C-8	R5520	D-8
C5601	C-9	R5522	C-7
C5604	B-10	R5523	C-7
C5605	D-10	R5524	C-7
C5606	D-10	R5525	C-7
C5608	B-10	R5551	C-8
C5612	B-10	R5557	A-8
C5704	B-9	R5558	B-8
		R5560	C-8
D5501	C-8	R5603	C-9
D5503	C-8	R5609	C-9
D5601	D-10	R5610	C-10
D5602	D-11	R5611	C-10
D5603	A-11	R5612	D-10
D5604	A-10	R5613	C-10
D5701	C-9	R5614	C-9
		R5616	D-10
FB5503	B-8	R5617	D-10
		R5618	D-10
IC5501	B-8	R5619	A-11
IC5601	C-9	R5620	A-10
IC5602	D-10	R5704	D-7
IC5701	B-9	R5706	C-7
		R5707	A-7
L5501	A-8	R5708	A-7
L5504	B-8	R5710	A-10
L5701	B-10	R5711	A-9
		R5712	B-9
LND703	B-11	R5713	A-8
LND704	D-10	R5714	A-9
LND705	A-11	R5717	D-9
Q5501	C-8	S5701	D-7
Q5601	C-9	S5702	C-7
Q5602	C-10	S5703	B-7
Q5603	D-10	S5704	A-7
Q5604	D-10		
Q5701	C-9		

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

VF-129 BOARD (SIDE A)

C903	A-2	R913	C-2
C904	B-2	R914	C-2
C906	A-2	R915	B-1
C907	A-1	R916	A-1
C909	B-1	R917	A-1
C913	A-2	R922	E-1
		R927	B-1
CN902	B-1	R928	B-1
		R929	A-1
D901	A-1	R930	C-1
		R931	C-1
IC901	A-1	R932	C-1
		RV903	C-2
L901	B-1	RV904	D-1
L903	D-1		
		T901	D-1
R903	A-1	T902	D-1
R907	B-1		
R908	B-2	TH901	B-2
R909	B-2		
R910	B-2		
R912	A-2	W901	D-2

VF-129 BOARD (SIDE B)

C901	A-3	R901	A-3
C902	A-3	R902	A-3
C905	A-3	R904	A-3
C908	C-2	R905	A-2
C910	C-3	R906	A-2
C911	C-3	R911	A-3
C912	B-3	R918	C-2
C914	D-3	R919	C-2
C915	E-3	R920	C-2
C916	C-3	R921	D-2
		R923	E-3
CN901	B-3	R924	C-3
		R925	C-3
D903	D-3	R926	D-2
L902	B-3		
Q901	A-2		
Q902	B-2		
Q903	C-3		
Q904	C-2		

DD-134 BOARD (SIDE A)

C306	C-1
C307	B-1
C310	C-3
C321	D-3
C327	D-2
C335	B-2
C339	D-3
C344	A-2
C345	A-2
C349	A-2
C350	A-2
C352	C-3
C355	A-1
C358	A-3
C360	A-3
C361	A-1
C363	A-1
C364	A-3

CN301 C-1

D301	B-1
D302	B-1
D304	C-1
D305	C-3
D306	C-2
D308	B-2
D309	A-2
D310	A-2
D311	A-2
D312	B-2
D313	B-2

F302	D-2
F303	D-3
F304	D-3
F305	D-3
F306	D-2

FB321 A-1

L301	B-3
L302	C-2
L304	B-3
L305	C-3
L306	C-3
L318	C-3
L319	A-1

LND302	A-2
LND308	B-2

Q301	C-3
Q302	C-2
Q303	C-2
Q304	D-2
Q305	C-1
Q316	D-3
Q322	A-3
Q323	B-3
Q325	B-3
Q327	B-1
Q328	B-1
Q329	A-3
Q330	A-2
Q331	A-3
Q332	B-1
Q333	A-3

R303	B-1
R309	C-3
R310	C-3
R313	C-2
R316	D-2
R317	D-2
R319	D-2
R329	A-3
R332	A-2
R333	A-3
R334	A-2
R336	B-3
R337	A-3
R338	A-3
R339	A-1
R340	A-2
R341	A-3
R342	A-1
R343	A-2
R344	B-1
R345	B-1
R346	B-1
R347	A-3
R348	A-3
R349	A-3
R350	A-3

T301	B-2
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DD-134 BOARD (SIDE B)

C301	D-6
C302	D-6
C303	D-5
C304	D-5
C305	D-5
C308	D-5
C309	D-6
C311	D-6
C312	C-5
C313	C-6
C314	C-5
C315	C-6
C316	C-5
C317	C-6
C318	C-5
C323	C-6
C324	C-5
C325	C-5
C326	C-5
C328	B-6
C329	B-5
C330	B-5
C331	D-6
C332	B-5
C333	B-6
C336	B-5
C337	C-5
C338	B-5
C340	C-6
C341	C-6
C342	A-6
C343	C-6
C346	A-5
C347	B-6
C348	A-6
C351	B-6
C353	A-6
C354	A-5
C356	A-5
C362	A-6
C367	D-5
C366	A-6

Q306	D-6
Q307	B-6
Q308	B-5
Q309	C-5
Q310	B-6
Q311	B-5
Q312	C-5
Q313	C-6
Q315	C-6
Q317	A-6
Q318	A-5
Q319	A-5
Q321	A-6

R301	D-6
R302	D-5
R304	C-6
R305	D-5
R306	D-6
R307	C-4
R311	D-6
R312	C-5
R314	C-6
R315	C-5
R318	C-6
R320	D-6
R321	D-6
R322	C-6
R323	A-5
R324	A-6
R325	A-6
R326	A-6
R327	A-5
R328	A-5
R330	D-6
R331	C-5
R335	D-6
R353	D-5
R354	D-5
R355	D-6
R356	B-6
R357	A-6
R358	A-6

CN933 A-7

D307	D-6
D314	D-6

FB310	C-6
FB320	A-7

IC301 C-5

SECTION 5 ADJUSTMENTS

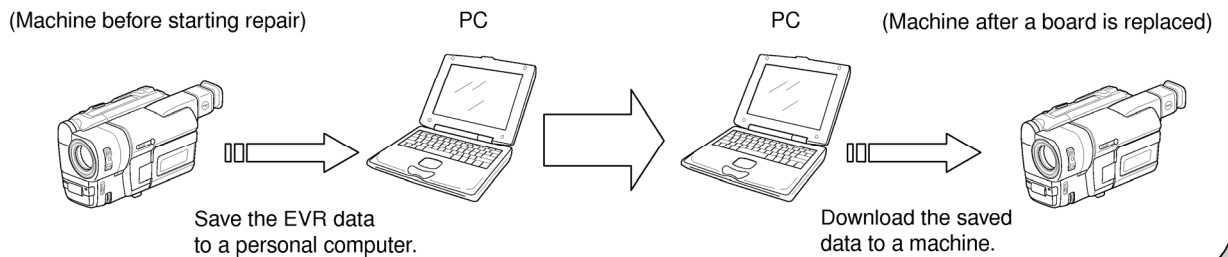
1. Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

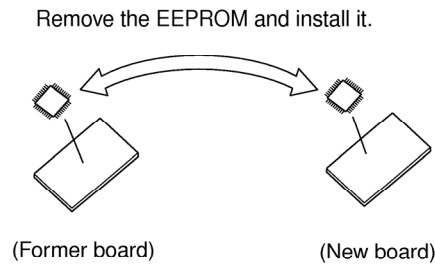
Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



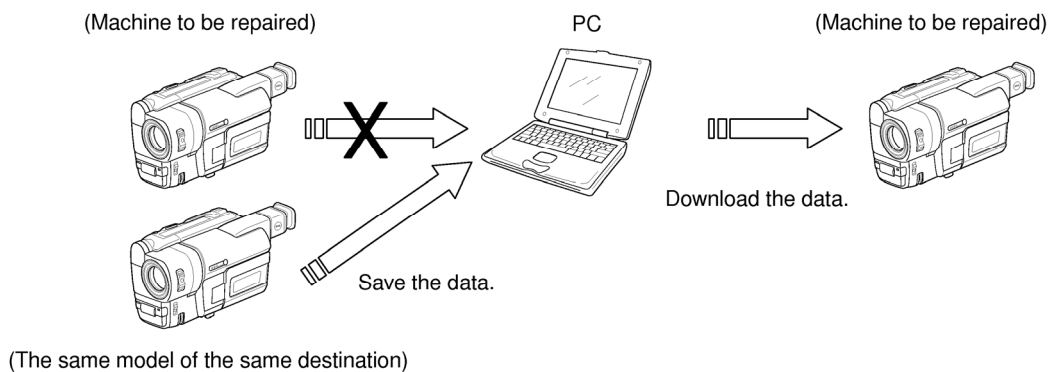
Procedure 2

Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.



Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-3 for the items to be checked.)

1-1. Adjusting items when replacing main parts and boards.

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts															
		Block replacement								Parts replacement							
		Lens device	Mechanism deck	LCD block (*1)	LCD block (*1)	B/W EVF block	Mechanism deck	Mechanism deck	CD-239/240 board	PD-117 board (*1)	PD-117 board (*1)	SE-100/101 board (*3)	VC-234 board	VC-234 board	VC-234 board	VC-234 board	VC-234 board
				LCD901 (LCD panel)	ND901 (Fluorescent tube)	V901 (Picture tube)	M901 (Drum assy)	M902 (Capstan motor)	IC201 (CCD imager)	IC5501 (RGB decoder (LCD))	IC5502 (Timing generator (LCD))	SE451,452 (PITCH, YAW sensor)	IC501, X501 (Timing generator)	IC502 (S/H, AGC, A/D conv.)	IC201 (Y, C process)	IC205 (VCO)	IC641 (Y, C IN/OUT)
															IC101 (REC/PB AMP)	IC751 (IR transmitter)	IC701 (AFM Audio process)
																VF-129 board	IC901 (CRT driver)
																VF-129 board	T901 (FBT)
Initialization of D, E, F, 7 page data	Initialization of D, E, F, 7 page data																
Camera	Hall adj.	●															
	Flange back adj.	●							●								
	Color reproduction adj.								●					●			
	AWB & LV standard data input								●					●			
	Auto white balance adj.								●					●			
	Steady shot check (*3)											●					
B/W EVF	Centering adj.					●											●
	Focus adj.					●											●
	Aberration adj.					●											●
	Horizontal amplitude adj.					●											●
	Vertical amplitude adj.					●											●
	Brightness adj.					●											●
LCD (*1)	LCD Initial data input																
	VCO adj.										●						
	RGB AMP adj.									●							
	Contrast adj.									●							
	COM AMP adj.									●							
	V-COM adj.			●						●							
	White balance adj.			●	●					●							
Servo	CAP FG offset adj.		●					●									
	Switching position adj.		●				●										
Video	28MHz origin oscillation adj.											●					
	AFC f ₀ adj.												●	●			
	Filter f ₀ adj.														●		
	Y OUT level adj.													●			
	C OUT level adj.													●			
	REC Y current adj.													●			
	REC C/AFM current adj.													●			
IR (*4)	IR video carrier frequency adj.														●		
	IR video deviation adj.														●		
	IR audio deviation adj.															●	
Audio	1.5MHz deviation adj.																●
	1.7MHz deviation adj. (*2)																●
	BPF f ₀ adj.																●
Mechanism	Tape path adj.	●					●	●									

Table. 5-1-1(1).

• **Adjusting items when replacing a board or EEPROM**

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts				
		Board replacement				
		SE-100/101 board (*3)	VC-234 board (COMPLETE)	PD-117 board (*1)	VF-129 board (COMPLETE)	
Initialization of D, E, F, 7 page data	Initialization of D, E, F, 7 page data					●
Camera	Hall adj.		●			●
	Flange back adj.		●			●
	Color reproduction adj.		●			●
	AWB & LV standard data input		●			●
	Auto white balance adj.		●			●
	Steady shot check (*3)	●	●			●
B/W EVF	Centering adj.				●	
	Focus adj.				●	
	Aberration adj.				●	
	Horizontal amplitude adj.				●	
	Vertical amplitude adj.				●	
	Brightness adj.				●	
LCD (*1)	LCD Initial data input		●			●
	VCO adj.		●	●		●
	RGB AMP adj.		●	●		●
	Contrast adj.		●	●		●
	COM AMP adj.		●	●		●
	V-COM adj.		●	●		●
	White balance adj.		●	●		●
Servo	CAP FG offset adj.		●			●
	Switching position adj.		●			●
Video	28MHz origin oscillation adj.					●
	AFC f ₀ adj.					●
	Filter f ₀ adj.					●
	Y OUT level adj.					●
	C OUT level adj.					●
	REC Y current adj.					●
	REC C/AFM current adj.					●
IR (*4)	IR video carrier frequency adj.					●
	IR video deviation adj.					●
	IR audio deviation adj.					●
Audio	1.5MHz deviation adj.					●
	1.7MHz deviation adj. (*2)					●
	BPF f ₀ adj.					●
Mechanism	Tape path adj.					

*1: TRV model (CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E) only.

*2: STEREO model (CCD-TR918E/TRV87E) only.

*3: STEADY SHOT model (CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E) only.

*4: LASER LINK model (CCD-TR918E/TRV87E) only.

Table. 5-1-1(2).

5-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Color monitor
- Vectorscope
- Regulated power supply
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded) (Note1)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	Multi CPC jig	J-6082-311-A	For adjusting the LCD block
J-9	CPC-7 jig	J-6082-382-A	For adjusting the video section
J-10	Power code (Note2)	J-6082-223-A	For connecting the battery terminal and DC power supply
J-11	AFM DEV jig	J-6082-312-A	For adjusting the deviation
J-12	IR receiver jig	J-6082-383-A	For adjusting the IR transmitter
J-13	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-14	Camera table	J-6082-384-A	For adjusting the flange back

Note1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note2: Connect the adjustment remote commander to the LANC jack, and set to HOLD switch to the "ADJ" side.

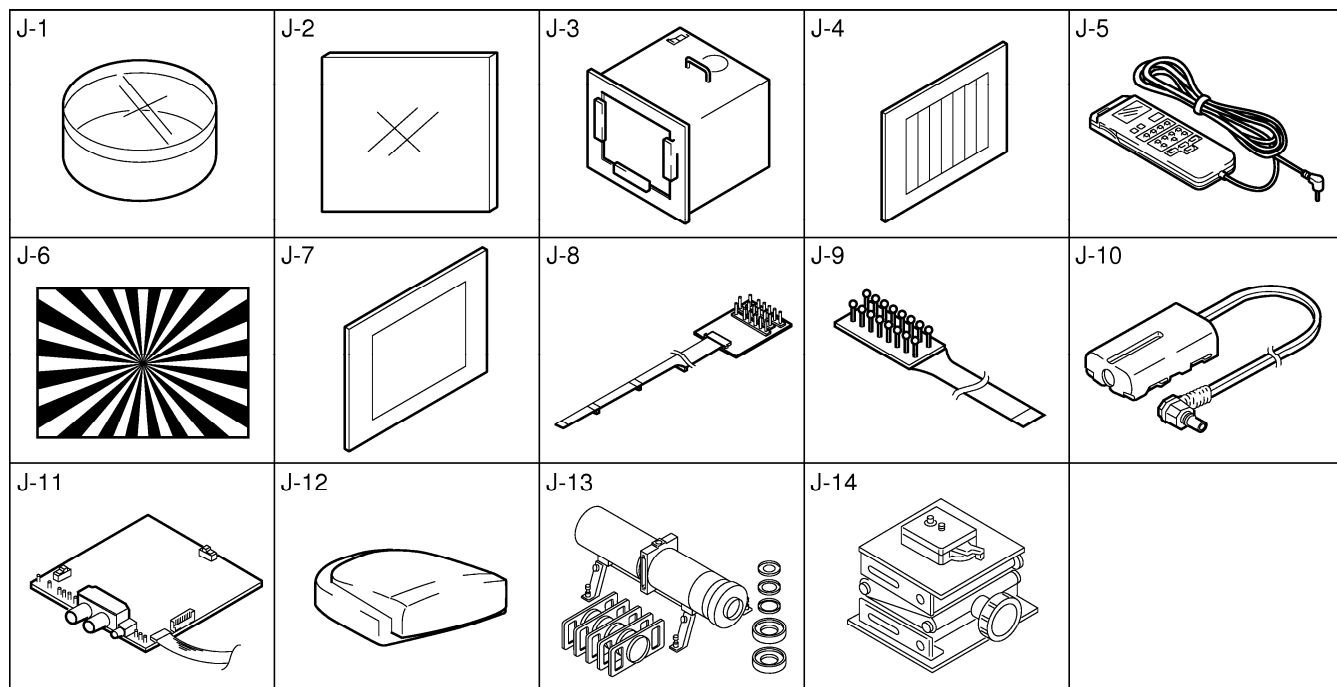


Fig. 5-1-1.

1-1-2. Preparations

Note1: For details of how remove the cabinet and boards, refer to “2. DISASSEMBLY”.

Note2: When performing only the adjustments, the lens block and boards need not be disassembled.

Note3: TR model / TRV model

TR model: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/
TR918E

TRV model: CCD-TRV37E/TRV47E/TRV48E/TRV57E/
TRV67E/TRV87E

- 1) Connect the equipment for adjustments according to Fig. 5-1-3, 5-1-4.
- 2) By setting the “Forced Camera Power ON mode”, the camera power can be turned ON even if the front panel block (MA-374/375 board, power switch, microphone unit) has been removed. When removing the front panel block, disconnect the following connector.

1. VC-234 board CN972 (20P 0.5mm)

Note4: As removing the cabinet (R) (removing the VC-234 board CN975) means removing the lithium 3V power supply (CF-66/67 board BH001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and data on history use (data of page: 2, address: A2 to AA). (Refer to “SELF-DIAGNOSIS FUNCTION” for the self-diagnosis data, and refer to “5-4. Service Mode” for the data on the history use.)

Note5: Setting the “Forced Camera Power ON” Mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.

The above procedure will enable the camera power to be turned on with the front panel block removed. After completing adjustments, be sure to exit the “Forced Camera Power ON Mode”.

Note6: Exiting the “Forced Camera Power ON” Mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

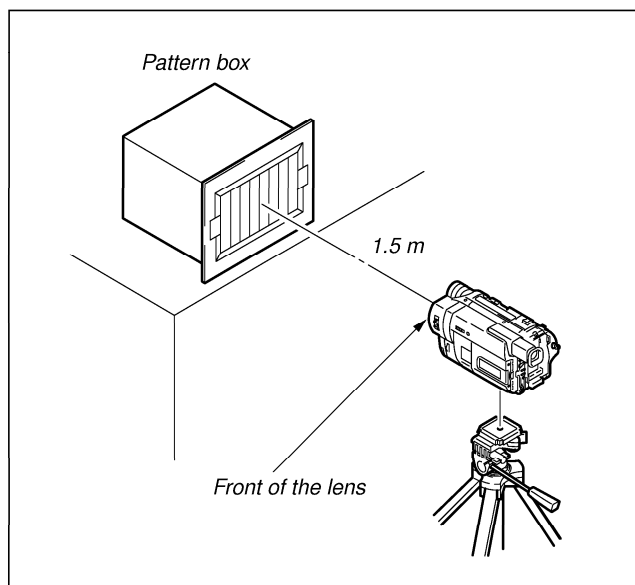


Fig. 5-1-2.

*1: Press the battery switch of the battery terminal using adhesive tape, etc.
*2: CCD-TRV87E model only.
*3: CCD-TRV57E/TRV67E/TRV87E model only.

Color monitor

Vector scope

Terminated at 75Ω

Regulated power supply (*1)
(8.4±0.1Vdc)

Need not connected

Battery terminal

Battery switch

DC IN jack

Adjustment remote commander

LANC jack

EJ-30 board

DD-134 board

Cabinet (L)

Must be connected when performing the video system adjustments.

CPC-7 jig (J-6082-382-A)

Must be connected

To CF-67 board CN001

To PD-117 board CN5701

Cabinet (R)

LCD WINDOW

Multi CPC jig (J-6082-311-A)

Must be connected when performing the LCD system adjustments.

VC-234 board

CD-240 board CN201

Front panel block

Need not connected

VIDEO jack

PJ-100 board CN101

MA-375 board CN303

SE-101 board CN451 (*3)

CN551

CN973 (*3)

CN501

CN971

CN972

CN974

CN976

CN975

CN978

CN979

CN980

CN981

CN982

CN931

CN301

CN933

CN252

CN251

CN253

CN5604

CN5501

CN5502

CN5703

CN5701

CN5704

CN5702

5-6

TR model (CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)

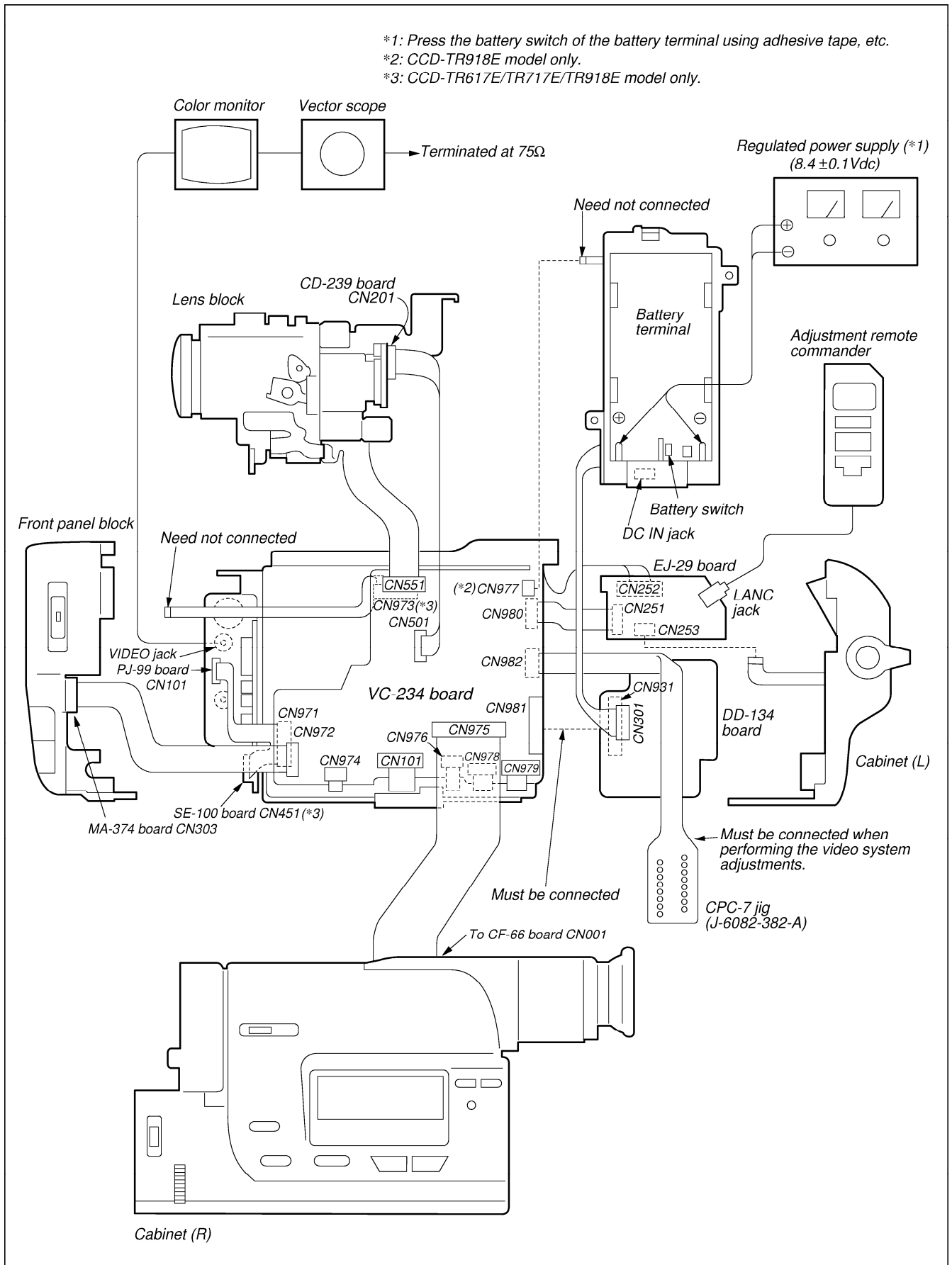


Fig. 5-1-4.

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

- | | | | |
|--|-----------|---|--------|
| 1. POWER switch (MA-374/375 board) | CAMERA | 8. DISPLAY (CF-66/67 board) (Note3) | ON |
| 2. NIGHT SHOT switch (Lens block) | OFF | 9. FOCUS switch (MR-8500 block) | MANUAL |
| 3. VIDEO LIGHT switch (MA-374/375 board) (Note1) | OFF | 10. PROGRAM AE (CF-66/67 board) | Auto |
| 4. DEMO MODE (Menu display) | OFF | 11. BACK LIGHT (CF-66/67 board) | OFF |
| 5. DIGITAL ZOOM (Menu display) | OFF | 12. PICTURE EFFECT (CF-66/67 board) | OFF |
| 6. STEADY SHOT (Menu display) (Note2) | OFF | 13. DIGITAL EFFECT (CF-66/67 board) (Note4) | OFF |
| 7. DISPLAY (Menu display) (Note3) | V-OUT/LCD | 14. 16 : 9 WIDE (MENU display) | OFF |

Note1: VIDEO LIGHT model (CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E) only.

Note2: STEADY SHOT model (CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E) only.

Note3: TRV model (CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E) only.

Note4: DIGITAL EFFECT model (CCD-TR918E/TRV87E) only.

2. Order of Adjustments

Basically carry out adjustments in the order given.

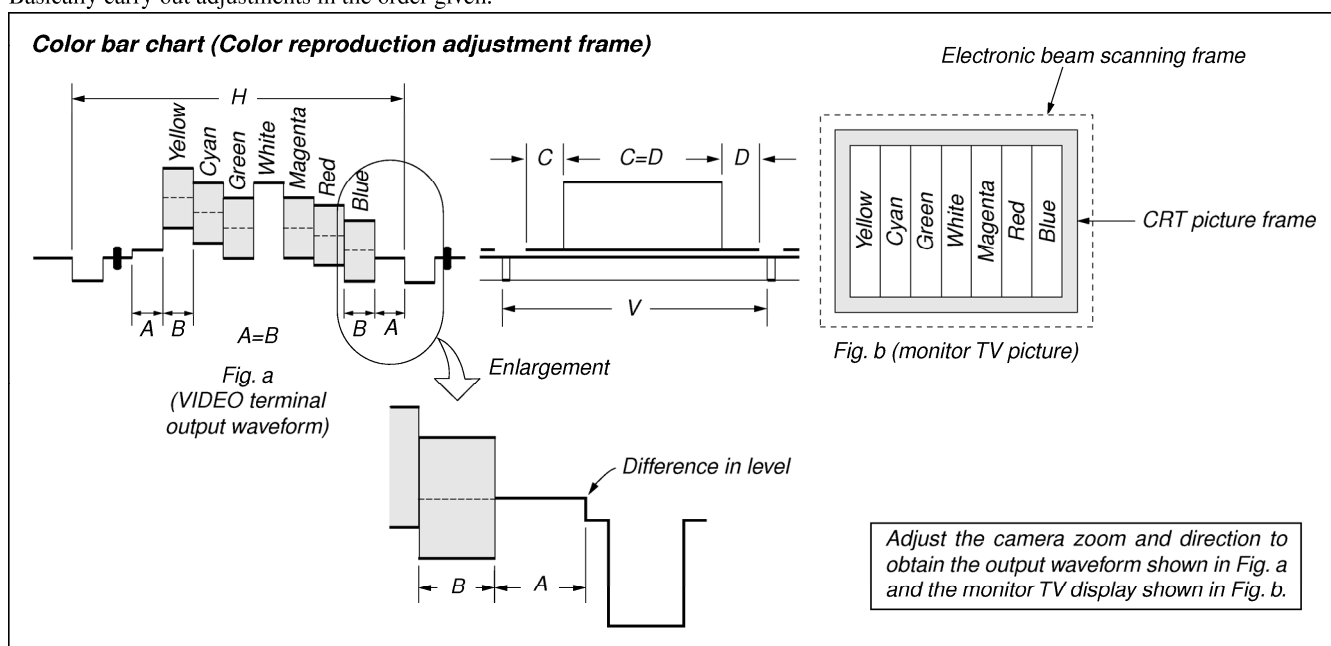


Fig.5-1-5.

3. Subjects

- 1) Color bar chart (Color reproduction adjustment frame)
When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-5. (Color reproduction adjustment frame)
- 2) Clear chart (Color reproduction adjustment frame)
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
- 3) Flange back adjustment chart
Make the chart shown in Fig. 5-1-6 using A0 size (1189mm × 841mm) black and white vellum paper.

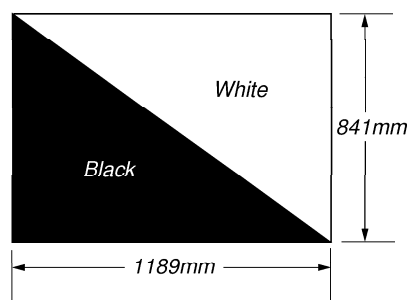


Fig. 5-1-6.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA

1. Initializing the D, E, F, 7 Page Data

Note 1: If “Initializing the D, E, F, 7 Page Data” is performed, all data of the D page, E page, F page and 7 page will be initialized. (It is impossible to initialize a single page.)

Note 2: If the D, E, F, 7 page data has been initialized, “Modification of D, E, F, 7 Page Data” and all adjustments need to be performed again.

Adjusting page	D
Adjusting Address	00 to 85
Adjusting page	F
Adjusting Address	00 to FF
Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	7
Adjusting Address	00 to FF

Initializing Method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 00, and set data: 51.
- 3) Select page: 6, address: 01, set data: 51, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 6, address: 02, and check that the data is 01.
- 5) Select page: 2, address: 00, and set data: 29.
- 6) Select page: 2, address: 01, set data: 29, and press the PAUSE button.
- 7) Perform “Modification of D, E, F, 7 Page Data”.

2. Modification of D, E, F, 7 Page Data

If the D, E, F, 7 page data has been initialized, change the data of the “Fixed data-2” address shown in the following tables by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note: If copy the data built in the different model, the camcorder may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D, E, F, 7 Page data

- 1) Select page: 2, address: 00, and set data: 29.
- 2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

Note: If the following symptoms occur after completing of the “Modification of D, E, F, 7 page data”, check that the data of the “Fixed data-2” addresses of D page are same as those of the same model of the same destination.

- 1) The battery end mark on the LCD or viewfinder screen is flashing.
- 2) The power is shut off so that unit cannot operate.

3. D Page Table

Note1: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)

Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Remark	
	Initial value	
00 to 0F		
10	00	Test mode
11		Fixed data-1
12		(Initialized data)
13		Fixed data-2
14		(Modified data. Copy the data built in the same model.)
15		
16		Fixed data-1
17		Fixed data-2
18		(Modified data. Copy the data built in the same model.)
19		
1A		
1B		
1C		
1D		
1E		
1F		
20		
21		Fixed data-1
22		Fixed data-2
23		Fixed data-1
24		(Initialized data)
25		
26		
27		
28		Fixed data-2
29		(Modified data. Copy the data built in the same model.)
2A		Fixed data-1
2B		(Initialized data)
2C		
2D		
2E		
2F		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
3A		
3B		
3C		
3D		
3E		
3F		

Address	Initial value	Remark
40		Fixed data-2
41		(Modified data. Copy the data built in the same model.)
42		Fixed data-1
43		Fixed data-2
44		(Modified data. Copy the data built in the same model.)
45		(Modified data. Copy the data built in the same model.)
46		Fixed data-1
47		
48		Fixed data-2
49		(Modified data. Copy the data built in the same model.)
4A		Fixed data-1
4B		(Initialized data)
4C		
4D		Fixed data-2
4E		
4F		Fixed data-1
50		Fixed data-2
51		(Modified data. Copy the data built in the same model.)
52		
53		
54		
55		
56		
57		Fixed data-1
58		Fixed data-2
59		(Modified data. Copy the data built in the same model.)
5A		
5B		
5C		
5D		Fixed data-1
5E		(Initialized data)
5F		
60		
61		
62		
63		
64		
65		Fixed data-2
66		(Modified data. Copy the data built in the same model.)
67		
68		
69		
6A		Fixed data-1
6B		(Initialized data)
6C		
6D		
6E		
6F		
70		
71		
72		
73		
74		
75		

Address	Initial value	Remark
76		Fixed data-1
77		(Initialized data)
78		
79		
7A		
7B		
7C		
7D		
7E		
7F		
80		
81		
82		
83		
84		Fixed data-2
85		Fixed data-1

Table. 5-1-2

4. F Page table

Note1: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Initial value	Remark
00 to 0F		
10	00	Emergency memory address
11	00	
12	00	
13	00	
14	00	
15	00	
16	00	
17	00	
18	00	
19	00	
1A	00	
1B	00	
1C		Fixed data-2
1D		(Modified data. Copy the data built in the same model.)
1E		Fixed data-1
1F		Fixed data-2
20		Fixed data-1 (Initialized data)
21		
22		
23		
24		
25		Fixed data-2
26		Fixed data-1
27		Fixed data-2
28		Fixed data-1 (Initialized data)
29		
2A		
2B		
2C		
2D		
2E		
2F		
30		
31		
32		
33		Fixed data-2
34		Fixed data-1 (Initialized data)
35		
36		
37		
38	68	
39	80	HALL adj.
3A	8D	
3B		Fixed data-2
3C	80	AWB & LV standard data input
3D	7A	
3E	2B	
3F	80	
40	65	
41	80	

Address	Initial value	Remark
42	8D	Auto white balance adj.
43	87	
44		Fixed data-1 (Initialized data)
45		
46		
47	33	Color reproduction adj.
48		Fixed data-1
49	34	Color reproduction adj.
4A		Fixed data-1 (Initialized data)
4B		
4C		
4D	8C	28MHz origin osc. Adj.
4E	28	Flange back adj.
4F	07	
50	3A	
51	4A	
52	12	
53	0B	
54	54	
55	00	
56	19	
57	00	
58	37	
59	00	
5A	00	
5B	04	
5C	00	
5D	00	
5E		Fixed data-2
5F		
60		Fixed data-1 (Initialized data)
61		
62	0A	Switching position adj.
63	00	
64	83	CAP FG offset adj.
65	40	AFC f ₀ adj.
66	77	Filter f ₀ adj.
67	6B	Y OUT level adj.
68	9A	C OUT level adj.
69		Fixed data-2
6A	D7	REC Y current adj.
6B	D7	
6C		Fixed data-1
6D		Fixed data-2 (Modified data. Copy the data built in the same model.)
6E		
6F		
70		
71	A0	
72		REC C/AFM current adj.
73		Fixed data-1
74		Fixed data-2 (Modified data. Copy the data built in the same model.)
75		
76		
77		
78		Fixed data-1 (Initialized data)
79		Fixed data-2

Address	Remark	
	Initial value	
7A		Fixed data-1
7B	A6	1.5MHz deviation adj.
7C	94	1.7MHz deviation adj.
7D	80	BPF f_0 adj.
7E	41	IR video deviation Adj.
7F	33	IR audio deviation Adj.
80	C7	IR video carrier freq. Adj.
81		Fixed data-2
82		Fixed data-1
83		(Initialized data)
84		
85		
86		
87		
88		
89		
8A		
8B		Fixed data-2
8C		Fixed data-1
8D		(Initialized data)
8E		Fixed data-2
8F		(Modified data. Copy the data built in the same model.)
90		Fixed data-1
91		(Initialized data)
92		
93		Fixed data-2
94		Fixed data-1
95		(Initialized data)
96		
97		
98		
99		
9A		
9B		
9C		
9D		
9E		Fixed data-2
9F		(Modified data. Copy the data built in the same model.)
A0		
A1		Fixed data-1
A2		(Initialized data)
A3		
A4		
A5		
A6		
A7		
A8		
A9		
AA		
AB		
AC		
AD		
AE		
AF		
B0		

Address	Remark	
	Initial value	
B1		Fixed data-1
B2		(Initialized data)
B3		
B4		
B5		
B6		
B7		
B8		Fixed data-2
B9		(Modified data. Copy the data built in the same model.)
BA		
BB		
BC		Fixed data-1
BD		(Initialized data)
BE		
BF		
C0		
C1		
C2		
C3		
C4		
C5		
C6		
C7		
C8		
C9		
CA		
CB		
CC		
CD		Fixed data-2
CE		Fixed data-1
CF		(Initialized data)
D0		
D1		
D2		
D3		
D4		Fixed data-2
D5		Fixed data-1
D6		(Initialized data)
D7	FC	Color reproduction adj.
D8	F2	
D9	11	
DA	33	
DB		Fixed data-2
DC		Fixed data-1
DD		(Initialized data)
DE		Fixed data-2
DF		
E0		Fixed data-1
E1		Fixed data-2
E2		Fixed data-1
E3		(Initialized data)
E4		
E5		
E6		
E7		
E8		

Address	Remark	
	Initial value	
E9		Fixed data-1 (Initialized data)
EA		
EB		
EC		
ED	Fixed data-2	
EE		
EF		Fixed data-1 (Initialized data)
F0		
F1		
F2		
F3		Fixed data-2 (Modified data. Copy the data built in the same model.)
F4		
F5		
F6		
F7		Fixed data-1 (Initialized data)
F8		
F9		
FA	Fixed data-2	
FB		Fixed data-1 (Initialized data)
FC		
FD		
FE		
FF		

Table. 5-1-3

5. E Page Table

Note: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)

Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Remark
00	Fixed data-1 (Initialized data)
01	
02	Fixed data-2 (Modified data. Copy the data built in the same model.)
03	
04	
05	
06	
07	Fixed data-1
08	Fixed data-2 (Modified data. Copy the data built in the same model.)
09	
0A	Fixed data-1 (Initialized data)
0B	
0C	
0D	
0E	Fixed data-2 (Modified data. Copy the data built in the same model.)
0F	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
1A	Fixed data-1 (Initialized data)
1B	
1C	
1D	
1E	
1F	
20	
21	
22	
23	
24	
25	
26	
27	
28	Fixed data-2
29	Fixed data-1 (Initialized data)
2A	
2B	
2C	
2D	
2E	
2F	
30	Fixed data-2
31	Fixed data-1 (Initialized data)
32	

Address	Remark
33	Fixed data-1
34	Fixed data-2
35	Fixed data-1
36	Fixed data-2
37	Fixed data-1
38	Fixed data-2
39	(Modified data. Copy the data built in the same model.)
3A	Fixed data-1
3B	Fixed data-2
3C	(Modified data. Copy the data built in the same model.)
3D	(Modified data. Copy the data built in the same model.)
3E	Fixed data-1
3F	(Initialized data)
40	
41	Fixed data-2
42	Fixed data-1
43	(Initialized data)
44	
45	
46	
47	
48	
49	
4A	
4B	
4C	
4D	
4E	
4F	
50	
51	Fixed data-2
52	Fixed data-1
53	(Initialized data)
54	
55	
56	
57	
58	
59	Fixed data-2
5A	Fixed data-1
5B	(Initialized data)
5C	
5D	
5E	
5F	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	

Address	Remark
6A	Fixed data-1
6B	(Initialized data)
6C	
6D	
6E	
6F	
70	
71	
72	Fixed data-2
73	Fixed data-1
74	(Initialized data)
75	
76	
77	
78	
79	
7A	
7B	
7C	Fixed data-2
7D	(Modified data. Copy the data built in the same model.)
7E	(Modified data. Copy the data built in the same model.)
7F	Fixed data-1
80	Fixed data-2
81	Fixed data-1
82	(Initialized data)
83	
84	
85	
86	
87	
88	
89	
8A	
8B	
8C	Fixed data-2
8D	(Modified data. Copy the data built in the same model.)
8E	(Modified data. Copy the data built in the same model.)
8F	Fixed data-1
90	Fixed data-2
91	Fixed data-1
92	(Initialized data)
93	Fixed data-2
94	Fixed data-1
95	(Initialized data)
96	
97	
98	Fixed data-2
99	Fixed data-1
9A	(Initialized data)
9B	
9C	
9D	
9E	
9F	
A0	
A1	

Address	Remark
A2	Fixed data-1 (Initialized data)
A3	
A4	
A5	
A6	
A7	
A8	Fixed data-2
A9	Fixed data-1 (Initialized data)
AA	
AB	Fixed data-2
AC	Fixed data-1 (Initialized data)
AD	
AE	
AF	
B0	
B1	
B2	
B3	
B4	
B5	
B6	
B7	Fixed data-2
B8	Fixed data-1
B9	Fixed data-2
BA	Fixed data-1
BB	Fixed data-2
BC	Fixed data-1 (Initialized data)
BD	
BE	
BF	
C0	Fixed data-2
C1	Fixed data-1
C2	Fixed data-2
C3	Fixed data-1
C4	Fixed data-2 (Modified data. Copy the data built in the same model.)
C5	
C6	
C7	Fixed data-1
C8	(Initialized data)
C9	Fixed data-2
CA	Fixed data-1 (Initialized data)
CB	
CC	Fixed data-2
CD	Fixed data-1 (Initialized data)
CE	
CF	
D0	Fixed data-2
D1	Fixed data-1 (Initialized data)
D2	
D3	Fixed data-2
D4	Fixed data-1 (Initialized data)
D5	
D6	Fixed data-2
D7	Fixed data-1
D8	(Initialized data)
D9	Fixed data-2

Address	Remark
DA	Fixed data-2 (Modified data. Copy the data built in the same model.)
DB	
DC	
DD	
DE	Fixed data-1
DF	Fixed data-2
E0	Fixed data-1 (Initialized data)
E1	
E2	
E3	Fixed data-2
E4	Fixed data-1 (Initialized data)
E5	
E6	
E7	
E8	
E9	
EA	
EB	
EC	
ED	
EE	
EF	
F0	
F1	
F2	
F3	
F4	
F5	Fixed data-2 (Modified data. Copy the data built in the same model.)
F6	
F7	
F8	
F9	
FA	
FB	Fixed data-1 (Initialized data)
FC	
FD	
FE	
FF	

Table. 5-1-4

6. 7 Page Table

Note: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Initial value	Remark
00		Fixed data-1
01		(Initialized data)
02		
03		
04		
05		
06		Fixed data-2
07		
08		Fixed data-1
09		(Initialized data)
0A		
0B		Fixed data-2
0C		Fixed data-1
0D		(Initialized data)
0E		
0F		
10		Fixed data-2
11		
12		Fixed data-1
13		(Initialized data)
14		Fixed data-2
15		Fixed data-1
16		(Initialized data)
17		
18		
19		
1A		
1B		
1C		
1D		
1E		
1F		
20		
21		
22		
23		
24		
25		
26		
27		
28		Fixed data-2
29		Fixed data-1
2A		Fixed data-2
2B		Fixed data-1
2C		(Initialized data)
2D		
2E		Fixed data-2
2F		Fixed data-1
30		Fixed data-2
31		Fixed data-1
32		Fixed data-2
33		Fixed data-1

Address	Initial value	Remark
34		Fixed data-1
35		(Initialized data)
36		Fixed data-2
37		Fixed data-1
38		Fixed data-2
39		Fixed data-1
3A		(Initialized data)
3B		
3C		
3D		
3E		
3F		
40		
41		
42		Fixed data-2
43		Fixed data-1
44		(Initialized data)
45		
46		
47		
48		
49		
4A		
4B		
4C		
4D		
4E		
4F		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
5A		
5B		
5C		Fixed data-2
5D		(Modified data. Copy the data built in
5E		the same model.)
5F		
60		Fixed data-1
61		(Initialized data)
62		
63		
64		Fixed data-2
65		(Modified data. Copy the data built in
66		the same model.)
67		
68		Fixed data-1
69		(Initialized data)
6A		
6B		Fixed data-2

Address	Initial value	Remark
6C		Fixed data-2
6D		(Modified data. Copy the data built in the same model.)
6E		
6F		Fixed data-1
70		(Initialized data)
71		
72		
73		
74		
75		
76		
77		Fixed data-2
78		(Modified data. Copy the data built in the same model.)
79		Fixed data-1
7A		Fixed data-2
7B		Fixed data-1
7C		(Initialized data)
7D		
7E		
7F		
80		
81		
82		
83		
84		
85		Fixed data-2
86		Fixed data-1
87		(Initialized data)
88		
89		
8A		
8B		
8C		
8D		
8E		
8F		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
9A		
9B		
9C		
9D		
9E		
9F		
A0		
A1		
A2		

Address	Initial value	Remark
A3		Fixed data-1
A4		(Initialized data)
A5		
A6		
A7		
A8		
A9		
AA		
AB		Fixed data-2
AC		Fixed data-1
AD		(Initialized data)
AE		
AF		
B0		
B1		
B2		
B3		
B4		
B5		
B6		
B7		
B8		
B9		
BA		
BB		
BC		
BD		
BE		
BF		
C0		
C1		
C2		
C3		
C4		Fixed data-2
C5		Fixed data-1
C6		Fixed data-2
C7		(Modified data. Copy the data built in the same model.)
C8		
C9		
CA		Fixed data-1
CB		
CC		Fixed data-2
CD		(Modified data. Copy the data built in the same model.)
CE		
CF		
D0		
D1		Fixed data-1
D2		(Initialized data)
D3		
D4		
D5		
D6		
D7		
D8		
D9		
DA		

Address	Remark	
	Initial value	
DB		Fixed data-1 (Initialized data)
DC		
DD		
DE		
DF		
E0		
E1		
E2		
E3		
E4		
E5	6E	VCO adj.(LCD)
E6	63	
E7	8E	V-COM adj.(LCD)
E8	29	RGB AMP adj.(LCD)
E9	Fixed data-1	
EA	C3	COM AMP adj.(LCD)
EB	60	White balance adj.(LCD)
EC	65	
ED	50	Contrast adj.(LCD)
EE		Fixed data-1
EF		(Initialized data)
F0	Fixed data-2	
F1		Fixed data-1
F2		(Initialized data)
F3	Fixed data-2	
F4		Fixed data-1
F5		(Initialized data)
F6		
F7		
F8		
F9	FF	REC Y current adj.(LCD)
FA		Fixed data-1
FB		(Initialized data)
FC		
FD		
FE		
FF		

Table. 5-1-5

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, Check that the specified value of “28MHz Origin Oscillation Adjustment”, “Y OUT level Adjustment” and “C OUT level Adjustment” of “VIDEO SYSTEM ADJUSTMENT” are satisfied.

1. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	Display data of page 1
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	38, 39, 3A
Specified Value	When the data of page: 6, address: 01 is “01”: 86 to 8A (Note2) When the data of page: 6, address: 01 is “03”: 15 to 19 (Note2)

Note1: Displayed data of page 1 of the adjustment remote commander.

1 : 00 : XX
 └── Display data

Note2: The PAUSE button of the Adjustment remote commander must be pressed.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 94, and set data: 88.
- 3) Select page: 6, address: 95, and set data: 17.
- 4) Select page: 6, address: 01, set data: 6D, and press the PAUSE button of the adjustment remote commander. (The HALL adjustment is performed and the adjustment data is stored in page: F, address: 38 to 3A.)
- 5) Select page: 6, address: 02, and check that the data is “01”.
- 6) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Checking method:

- 1) Select page: 0, address: 03, and set data: 03.
- 2) Select page: 6, address: 01, set data: 01, and press the PAUSE button.
- 3) Select page: 1, and check that the display data (Note1) satisfies the specified value.
- 4) Select page: 6, address: 01, set data: 03, and press the PAUSE button.
- 5) Select page: 1, and check that the display data (Note1) satisfies the specified value.

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: 6, address: 94, and set data: 00.
- 3) Select page: 6, address: 95, and set data: 00.
- 4) Select page: 0, address: 01, and set data: 00.
- 5) Select page: 0, address: 03, and set data: 00.

2. Flange Back Adjustment (Using Minipattern Box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note1)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note1: Dark Siemens star chart.

Note2: Make the lens horizontal and perform this adjustment.

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF
- 4) VIDEO LIGHT OFF

Preparations before adjustments:

The minipattern box is installed as shown in the following figure.

Note: The attachment lenses are not used.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

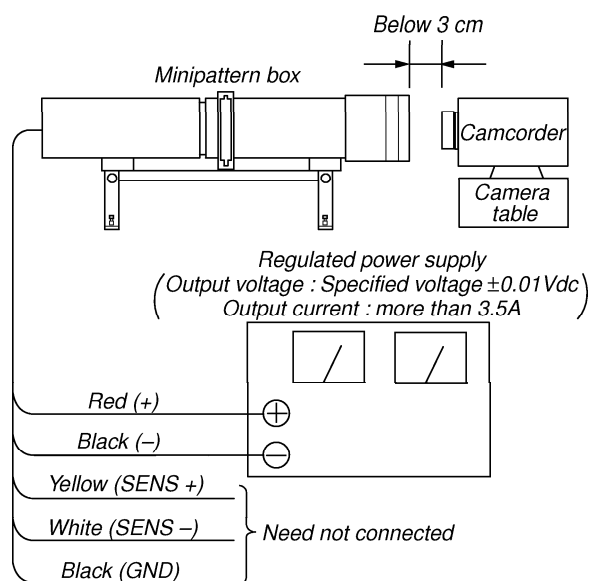


Fig. 5-1-7.

Adjusting method:

- 1) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 3cm.
- 2) Make the height of the minipattern box and the camcorder equal.
- 3) Check that the output voltage of the regulated power supply is the specified voltage.
- 4) Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.
- 5) Select page: 0, address: 01, and set data: 01.
- 6) Check that the data of page: F, address: 4E to 5D is the initial value (See table below).

Address	Data	Address	Data
4E	28	56	19
4F	07	57	00
50	3A	58	37
51	4A	59	00
52	12	5A	00
53	0B	5B	04
54	54	5C	00
55	00	5D	00

- 7) Select page: 6, address: 02, and check that the data is "00".
- 8) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 9) Select page: 6, address: 01, set data: 27, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
- 10) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Turn off the power and turn on again.
- 3) Perform "Flange Back Check".

3. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

3-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 350 ± 50 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note: Make the lens horizontal and perform this adjustment.

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF
- 4) VIDEO LIGHT OFF

Adjusting method:

- 1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Check that the data of page: F, address: 4E to 5D is the initial value (See table below).

Address	Data	Address	Data
4E	28	56	19
4F	07	57	00
50	3A	58	37
51	4A	59	00
52	12	5A	00
53	0B	5B	04
54	54	5C	00
55	00	5D	00

- 4) Select page: 6, address: 02, and check that the data is "00".
- 5) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 6) Select page: 6, address: 01, set data: 15, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
- 7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Turn off the power and turn on again.
- 3) Perform "Flange Back Adjustment (2)".

3-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note: Make the lens horizontal and perform this adjustment.

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF
- 4) VIDEO LIGHT OFF

Adjusting method:

- 1) Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 6, address: 02, and check that the data is "00".
- 4) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 5) Place a ND filter on the lens so that the optimum image is obtain.
- 6) Select page: 6, address: 01, set data: 29, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
- 7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Turn off the power and turn on again.
- 3) Perform "Flange Back Check".

4. Flange Back Check

Subject	Siemens star (2.0 m from the front of the lens) (Luminance : approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Switch setting:

- 1) NIGHT SHOT OFF
- 2) VIDEO LIGHT OFF

Checking method:

- 1) Place the Siemens star 2.0m from the front of the lens.
- 2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
- 3) Select page: 6, address: 40, and set data: 02.
- 4) Select page: 6, address: 41, and set data: 01.
- 5) Shoot the Siemens star with the zoom TELE end.
- 6) Turn on the auto focus.
- 7) Check that the lens is focused (Note).
- 8) Select page: 6, address: 21, and set data: 10.
- 9) Shoot the Siemens star with the zoom WIDE end.
- 10) Observe the TV monitor and check that the lens is focused.

Note: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.

- 1) Select page: 0, address: 03, and set data: 0F.
- 2) Page 1 shows the state of the focus.

1 : 00 : XX

Odd: Focused
Even: Unfocused

Processing after Completing Adjustments

- 1) Select page: 6, address: 21, and set data: 00.
- 2) Select page: 6, address: 40, and set data: 00.
- 3) Select page: 6, address: 41, and set data: 00.
- 4) Select page: 0, address: 03, and set data: 00.

5. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF
- 4) VIDEO LIGHT OFF

Setting method:

- 1) Adjust the zoom and the camera direction, and set to the specified position.
- 2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

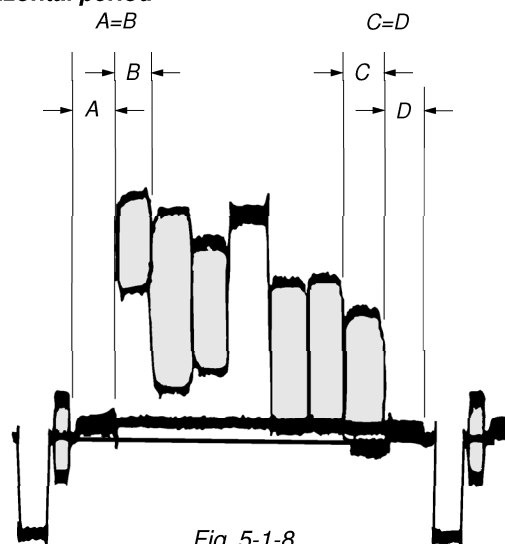


Fig. 5-1-8.

2. Vertical period

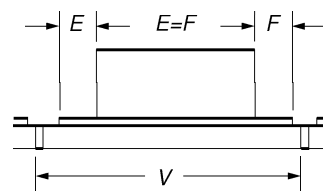


Fig. 5-1-9.

Check on the monitor TV (Underscanned mode)

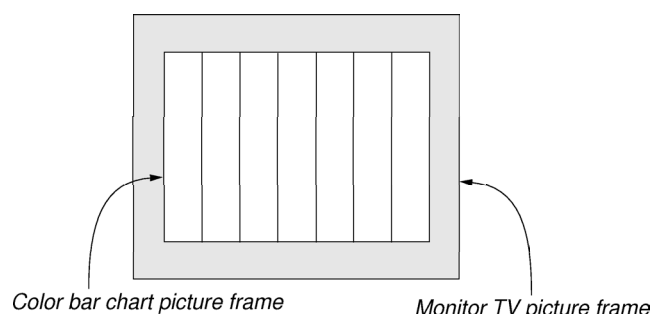


Fig. 5-1-10.

6. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	47, 49, D7, D8
Specified Value	All color luminance points should settle within each color reproduction frame.

Note: 760H TYPE S model:
CCD-TRV87E
760H TYPE P model:
CCD-TR918E
510H 1/4 inch model:
CCD-TR617E/TR717E/TRV57E/TRV67E
510H 1/6 inch model:
CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF
- 4) VIDEO LIGHT OFF

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 2B, set data: 97, and press the PAUSE button.
- 3) Select page: F, address: 8B, and note down the data.
- 4) Input the following data to page: F, address: 8B.

	Data
760H model	26
510H 1/4 inch model	29
510H 1/6 inch model	29

Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

- 5) Select page: 6, address: 01, set data: 3D, and press the PAUSE button.
- 6) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
- 7) Change the data of page: F, address: 47, 49, D7 and D8, and settle each color luminance point in each color reproduction frame.

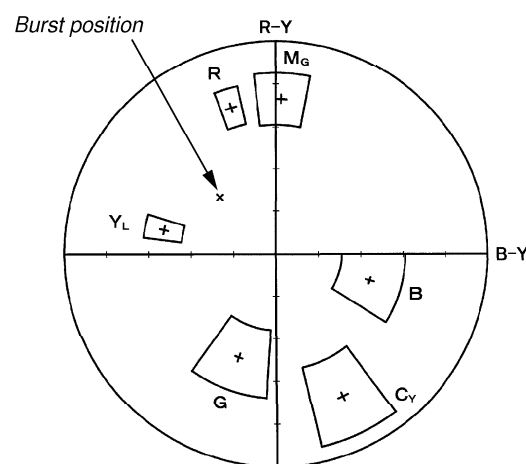
Note: Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.

- 8) Select page: F, address: 8B, input the data noted down at step 3), and press the PAUSE button.

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 2) Select page: 0, address: 01, and set data: 00.

For 510H model and 760H TYPE S model



For 760H TYPE P model

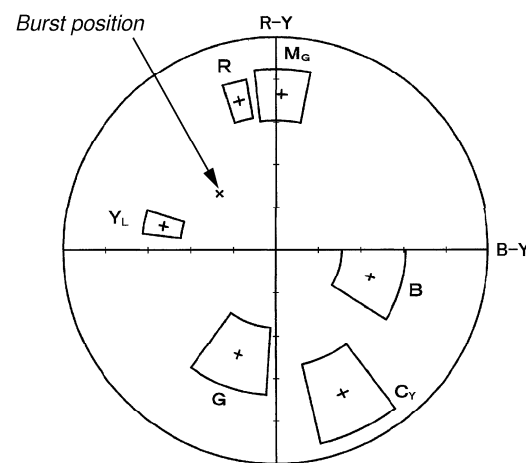


Fig. 5-1-11.

7. Auto White Balance & LV Standard Data Input

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	3C to 41

Note1: This adjustment should be carried out upon completion of “6. Color Reproduction Adjustment”.

Note2: Check that the data of page: 6, address: 02 is “00”. If not, turn off the power and turn on again.

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF
- 4) VIDEO LIGHT OFF

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 01, set data: 11, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 01, set data: 0D, and press the PAUSE button.
(When the standard data is take in, the data will be automatically input to page: F, address: 3C to 41.)
- 4) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 2) Select page: 0, address: 01, and set data: 00.
- 3) Perform “Auto White Balance Adjustment”.

8. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.

If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Display data of page 1 (Note2)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	42, 43
Specified Value	760H TYPE S model: R ratio: 2B70 to 2BF0 B ratio: 5E80 to 5F40 760H TYPE P model: R ratio: 2A60 to 2AE0 B ratio: 6020 to 60E0 510H 1/4 inch model: R ratio: 2B40 to 2BC0 B ratio: 5EA0 to 5F60 510H 1/6 inch model: R ratio: 29C0 to 2A40 B ratio: 6040 to 6100

Note1: Perform “Auto White Balance & LV Standard Data Input” before this adjustment.

Note2: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX

Display data

Note3: 760H TYPE S model:
CCD-TRV87E
760H TYPE P model:
CCD-TR918E
510H 1/4 inch model:
CCD-TRV57E/TRV67E/TR617E/TR717E
510H 1/6 inch model:
CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF
- 4) VIDEO LIGHT OFF

Adjusting method:

- 1) Place the C14 filter for color temperature correction on the lens.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: F, address: B8 to BB, and note down the data of each address.
- 4) Input the following data to page: F, addresses: B8 to BB.

Address		B8	B9	BA	BB
Data	760H TYPE S model	2B	B0	5E	E0
	760H TYPE P model	2A	A0	60	80
	510H 1/4 inch model	2B	80	5F	00
	510H 1/6 inch model	2A	00	60	A0

Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

- 5) Select page: 6, address: 01, set data: A7, and press the PAUSE button.
- 6) Select page: 6, address: 01, set data: A5, and press the PAUSE button.
(The auto white balance adjustment is performed and the adjustment data is stored in page: F, address: 42 and 43.)
- 7) Select page: 6, address: 02, and check that the data is “01”.

- 8) Select page: 6, address: 01, set data: 3F, and press the PAUSE button.
- 9) Select page: 0, address: 03, and set data: 04.
- 10) Select page: 1, and check that the display data (Note2) satisfies the R ratio specified value.
- 11) Select page: 0, address: 03, and set data: 05.
- 12) Select page: 1, and check that the display data (Note2) satisfies the B ratio specified value.
- 13) Select page: F, address: B8 to BB, and input the data noted down at step 3).

Note: After setting each data, be sure to press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: 0, address: 03, and set data: 00.
- 3) Select page: 0, address: 01, and set data: 00.

9. White Balance Check

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.4 and 0.1
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-12. A to C

Switch setting:

- 1) NIGHT SHOT OFF
- 2) DIGITAL ZOOM (Menu display) OFF
- 3) STEADY SHOT (Menu display) OFF
- 4) VIDEO LIGHT OFF

Checking method:

- 1) Check that the lens is not covered with either filter.
- 2) Select page: 6, address: 01, set data: 0F, and press the PAUSE button of the adjustment remote commander.
- 3) Check that the center of the white luminance point is within the circle shown Fig. 5-1-12. (A).
- 4) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 5) Select page: 6, address: 01, set data: 23, and press the PAUSE button.
- 6) Place the C14 filter on the lens.
- 7) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-12. (B).
- 8) Remove the C14 filter, and place the ND filter 1.5 (1.0+0.4+0.1) on the lens.
- 9) Check that the white luminance point stopped moving, and then remove the ND filter 1.5.
- 10) Check that the center of the white luminance point settles within the circle shown Fig. 5-1-12. (C).

Processing after Completing Adjustments

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.

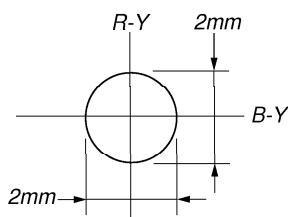


Fig. 5-1-12. (A)

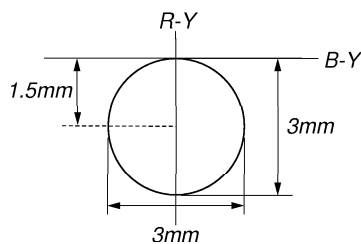


Fig. 5-1-12. (B)

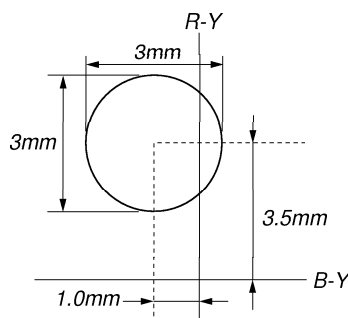


Fig. 5-1-12. (C)

10. Steady Shot Check

(CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)

Precautions on the Angular Velocity Sensor Replacement

There are two types of repair parts.

Type A ENC03JA

Type B ENC03JB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations. After replacing, check the steady shot operations.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Steady Shot Check

Check the output of the angular velocity sensor.

Subject	Arbitrary
Measurement Point	Display data of page 1 (Note)
Measuring Instrument	Adjustment remote commander
Specified Value	PITCH data : 2700 to 5100 YAW data : 2700 to 5100

Note: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX

Display data

Switch setting:

- 1) ZOOM TELE end
- 2) STEADY SHOT (Menu display) ON

Checking method:

- 1) Select page: 0, address: 03, and set data: 11.
- 2) Select page: 1, and check that the PITCH data satisfies the specified value.
- 3) Select page: 0, address: 03, and set data: 12.
- 4) Select page: 1, and check that the YAW data satisfies the specified value.

Processing after Completing Adjustments

- 1) Select page: 0, address: 03, and set data: 00.
- 2) Check that the steady shot operations have been performed normally.

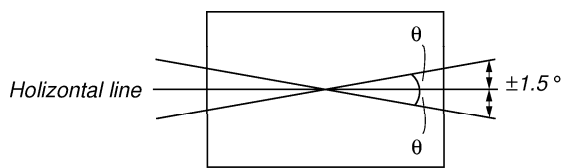
1-4. MONOCHROME ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT

1-4-1. Horizontal Slant Check

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Specified Value	$\pm 1.5^\circ$

Adjusting method:

- 1) Adjust RV904 (BRIGHT) (VF-129 board) so that the CRT can be seen easily and clearly.
- 2) Check that the difference between the horizontal line and the tilt of black mask satisfies the specified value.



Specified value : The image should be within $\pm 1.5^\circ$ of the horizontal line.

Fig. 5-1-13.

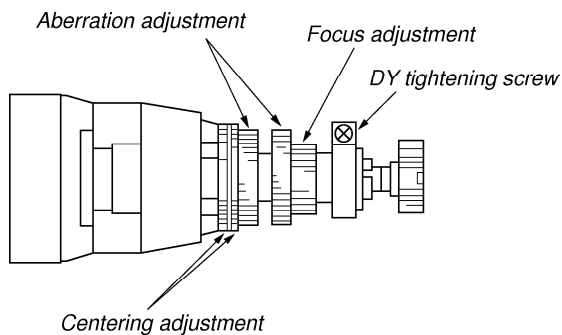
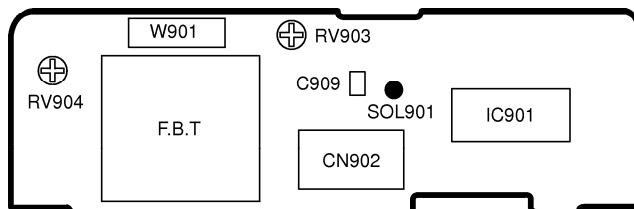


Fig. 5-1-14.

VF-129 BOARD



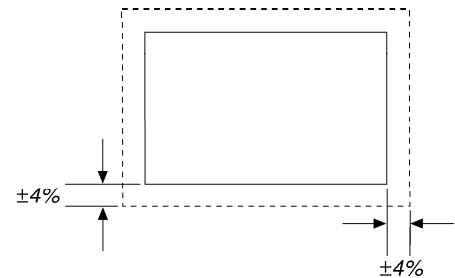
1-4-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Specified Value	$\pm 4\%$

Adjusting method:

- 1) Use the centering adjustment ring and adjust so that the left, light, top, and bottom sides of the display are uniform. (Refer to Fig. 5-1-15.)

Note: As the centering position changes due to earth magnetism, rotate it 360° in the horizontal direction, and adjust with the center section of the modifying position.



Adjustment value : $\pm 4\%$

Fig. 5-1-15.

1-4-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section

Adjusting method:

- 1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 5-1-14.)

1-4-4. Aberration Adjustment

Mode	VTR stop
Signal	Dot pattern
Specified Value	$b1 \leq 2 \times a1$ $b2 \leq 0.8 \times a2$

Adjusting method:

- 1) Adjust the aberration adjustment ring so that the tracing of the dot satisfies the specified value.
- 2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

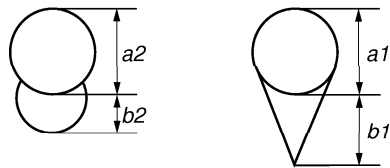


Fig. 5-1-16.

1-4-5. Horizontal Amplitude Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Adjusting Element	C909 (SOL901)
Specified Value	$10 \pm 6\%$

Adjusting method:

- 1) Rotate RV903, and adjust the top and bottom side of the monoscope image to the top and bottom edges of the display.
- 2) Rotate RV904 so that the brightness is the normal level.
- 3) Solder or unsolder SOL901 pattern of the H size adjustment capacitor (C909) to “short” or “open”, so that the horizontal direction over scan becomes $10 \pm 6\%$ (Left and right totals).

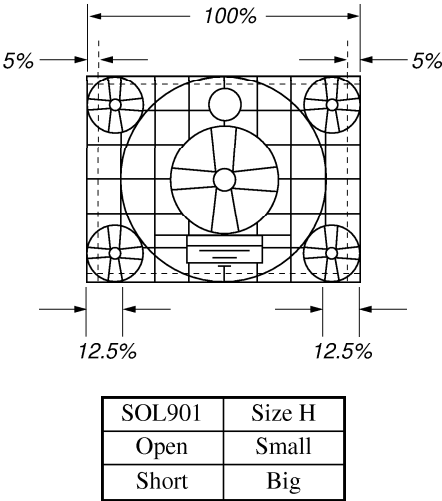
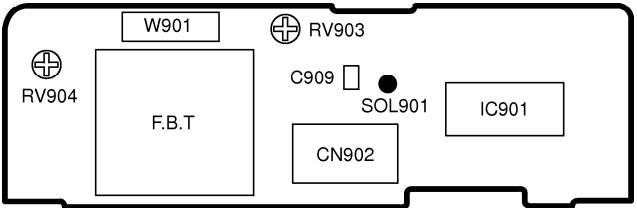


Fig. 5-1-17.

VF-129 BOARD



1-4-6. Vertical Amplitude Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Adjusting Element	RV903
Specified Value	$10 \pm 3\%$

Adjusting method:

- 1) Adjust RV903 so that the vertical direction over scan becomes $10 \pm 3\%$ (Top and bottom totals).

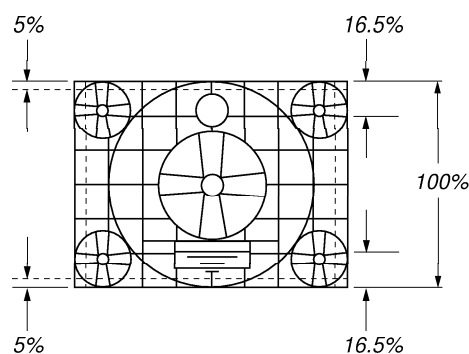


Fig. 5-1-18.

1-4-7. Brightness Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Adjusting Element	RV904

Adjusting method:

- 1) Rotate RV904, and adjust so that the bright/dark sections of gray scale are displayed correctly. (The bright section should be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till the darkest section of the gray scale cannot be differentiate.)

1-4-8. Horizontal Amplitude, Vertical Amplitude, Focus Check

“1-4-5. Horizontal Amplitude Adjustment” and “1-4-6. Vertical Amplitude Adjustment” should be both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform “1-4-7. Brightness Adjustment” again. Moreover, check the focus, and if it found to be vague, perform “1-4-3. Focus Adjustment” and “1-4-4. Aberration Adjustment”.

1-5. LCD SYSTEM ADJUSTMENT (CCD-TRV37E/TRV47E/TRV48E/TRV57E/ TRV67E/ TRV87E)

Note1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note 3: Set the LCD BRIGHT to the center.
Set the LCD COLOR (Menu display) to the center.

[Adjusting connector]

Most of the measuring points for adjusting the LCD display are concentrated in the following connector.

CN5502 of the PD-117 board

Connect the Measuring Instruments via the multi CPC jig (J-6082-311-A).

The following table shows the Pin No. and signal name of the connector.

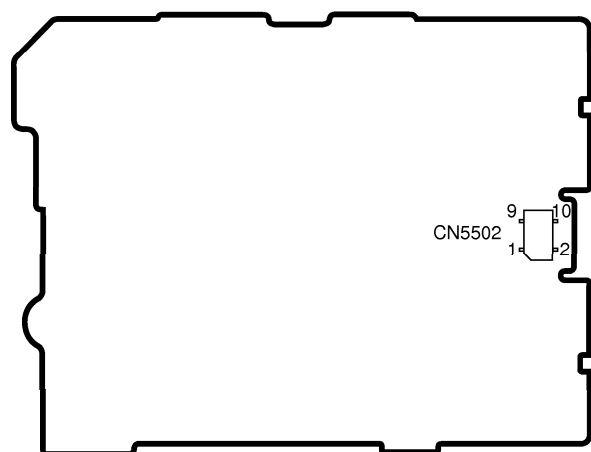
Pin No.	Signal Name	Pin No.	Signal Name
1	VB	2	XVD OUT
3	VG	4	PANEL COM
5	VR	6	N.C.
7	C SYNC	8	XHD OUT
9	GND	10	GND

[LCD type check]

By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502, the type of LCD can be discriminated.

Resistor value	LCD type
1kΩ	LCD TYPE S
1.5kΩ	LCD TYPE C

PD-117 board



1. LCD Initial Data Input

Mode	Camera
Subject	Arbitrary
Adjustment Page	7
Adjustment Address	A8 to AB, C4 to D2, E3 to ED, EF to F3

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 7, and input the data in the following table.
Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
- 3) Select page: 0, address: 01, and set data: 00.

Address	Data	Remark
A8	E3	Fixed data
A9	E3	Fixed data
AA	E3	Fixed data
AB	F7	Fixed data
C4	45	Fixed data
C5	00	Fixed data
C6	90	Fixed data
C7	90	Fixed data
C8	66	Fixed data
C9	26	Fixed data
CA	00	Fixed data
CB	80	Fixed data
CC	13	Fixed data
CD	C9	Fixed data
CE	23	Fixed data
CF	1A	Fixed data
D0	08	Fixed data
D1	33	Fixed data
D2	33	Fixed data
E3	78	Fixed data
E4	91	Fixed data
E5	6E	VCO adj.
E6	63	VCO adj.
E7	8E	V-COM adj.
E8	29	RGB AMP adj.
E9	00	Fixed data
EA	C3	COM AMP adj.
EB	60	White balance adj.
EC	65	White balance adj.
ED	50	Contrast adj.
EF	10	Fixed data
F0	6B	Fixed data
F1	9F	Fixed data
F2	1F	Fixed data
F3	DA	Fixed data

2. VCO Adjustment (PD-117 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑧ of CN5502 (XHD OUT)
Measuring Instrument	Frequency counter
Adjustment Page	7
Adjustment Address	E5, E6
Specified Value	$f = 15625 \pm 30\text{Hz}$

Note: Refer to “LCD type check” for the discrimination of the LCD type.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 7, address: E5, change the data and set the XHD OUT frequency (f) to the specified value.
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 7, address: E5, read the data, and this data is named D_{E5} .
- 5) Convert D_{E5} to decimal notation, and obtain D_{E5}' . (Refer to Table 5-4-1. Hexadecimal-decimal Conversion Table.)
- 6) Calculate D_{E6}' using following equations (Decimal calculation), convert it to a hexadecimal number, and input to address: E6.
LCD TYPE S:
When $D_{E5}' \geq 20$
 $D_{E6}' = D_{E5}' - 20$
When $D_{E5}' < 20$
 $D_{E6}' = 00$
LCD TYPE C:
When $D_{E5}' \geq 22$
 $D_{E6}' = D_{E5}' - 22$
When $D_{E5}' < 22$
 $D_{E6}' = 00$
- 7) Press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

3. RGB AMP Adjustment (PD-117 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5502 (VG) External trigger : Pin ④ of CN5502 (PANEL.COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	E8
Specified Value	LCD TYPE S: $A = 3.63 \pm 0.05\text{V}$ LCD TYPE C: $A = 3.00 \pm 0.05\text{V}$

Note1: Press the DISPLAY button and erase the screen indicators on the LCD screen.

Note2: Refer to “LCD type check” for the discrimination of the LCD type.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 7, address: E8, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
(The data of address: E8 should be “00” to “3F”.)
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

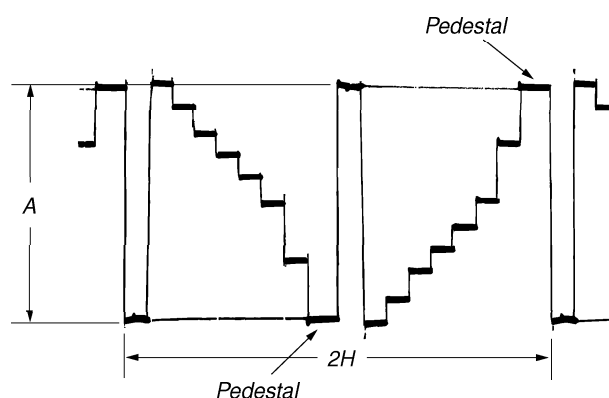


Fig. 5-1-19.

4. Contrast Adjustment (PD-117 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5502 (VG) External trigger : Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	ED
Specified Value	LCD TYPE S: $A = 3.68 \pm 0.07V$ LCD TYPE C: $A = 2.84 \pm 0.07V$

Note: Refer to "LCD type check" for the discrimination of the LCD type.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 7, address: ED, change the data and set the voltage (A) between the pedestal (0 IRE) and 100 IRE to the specified value.
(The data of address: ED should be "00" to "7F".)
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

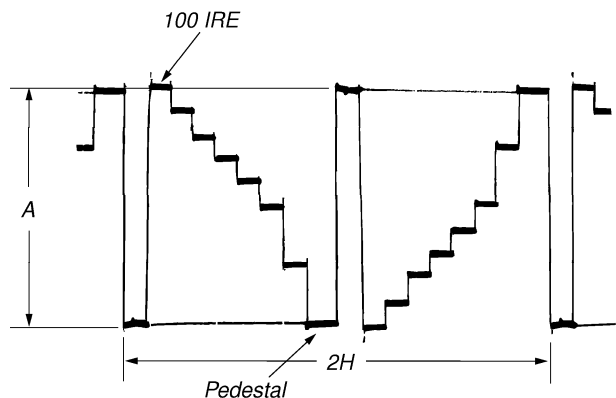


Fig. 5-1-20.

5. COM AMP Adjustment (PD-117 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	EA
Specified Value	LCD TYPE S: $A = 6.40 \pm 0.05V$ LCD TYPE C: $A = 4.88 \pm 0.05V$

Note: Refer to "LCD type check" for the discrimination of the LCD type.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 7, address: EA, change the data and set the PANEL COM signal level (A) to the specified value.
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

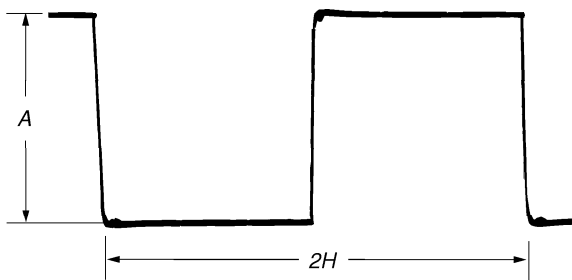


Fig. 5-1-21.

6. V-COM Adjustment (PD-117 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	7
Adjustment Address	E7
Specified Value	The brightness difference between the section A and section B is minimum.

Note1: Perform “RGB AMP Adjustment”, “Contrast Adjustment” and “COM AMP Adjustment” before this adjustment.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 7, address: E7, change the data so that the brightness of the section A and that of the section B is equal.
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

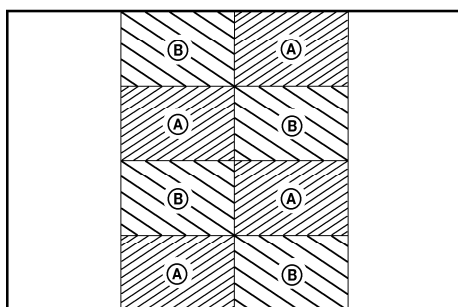


Fig. 5-1-22.

7. White Balance Adjustment (PD-117 board)

Correct the white balance.

If deviated, the LCD screen color cannot be reproduced.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	7
Adjustment Address	EB, EC
Specified Value	The LCD screen should not be colored.

Note1: Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC5501

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 7, address: EB and EC, and set the data to the initial value.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	EB	EC
Data	60	65

- 3) Check that the LCD screen is not colored. If colored, change the data of page: 7, address: EB and EC so that the LCD screen is not colored.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

- 4) Select page: 0, address: 01, and set data: 00.

5-2. MECHANISM SECTION ADJUSTMENT

Mechanism Section adjustments, checks, and replacement of mechanism parts, refer to the separate volume “8mm Video Mechanism Adjustment Manual VII [B Mechanism]”.

2-1. OPERATING WITHOUT CASSETTE

- 1) Refer to “Section 2. DISASSEMBLY” and supply the power with the cabinet assembly removed. (So that the mechanical deck can be operated.)
- 2) Connect the adjustment remote commander to the LANC jack.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Close the cassette compartment without loading a cassette and complete loading.
- 5) Select page: 0, address: 01, and set data: 01.
- 6) Select page: F, address: 22, set data: 81, and press the PAUSE button of the adjustment remote commander.
- 7) Select page: D, address: 10, set data: 10, and press the PAUSE button of the adjustment remote commander.
- 8) Disconnect the power supply of the unit.

By carrying out the above procedure, the unit can be operated without loading a cassette.

Be sure to carry out “Processing after Operations” after checking the operations.

Set the data of page: D, address: 10 to the following if the sensor ineffective mode, forced VTR power supply On mode or forced camera power supply ON mode are to be used together.

Forced VTR power ON mode	12
Forced camera power ON mode	11

[Procedure after checking operations]

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.
- 5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for Adjustment

- 1) Clean the tape path face (tape guide, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander to the LANC jack.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 01.
- 5) Select page: F, address: 22, set data: 88, and press the PAUSE button of the adjustment remote commander.
(Be sure to perform “Processing after operation” after completing adjustments.)
- 6) Connect the oscilloscope to VC-234 board CN982 via CPC-7 jig (J-6082-382-A).
Channel 1: VC-234 board, CN982 Pin ⑥
External trigger: VC-234 board, CN982 Pin ⑪
- 7) Playback an alignment tape for tracking. (WR5-1CP)
- 8) Check that the oscilloscope RF waveform is flat at the entrance and exit.
If not flat, adjust according to the separate volume “8mm Video Mechanical Adjustment Manual VII [B Mechanism]”.
- 9) Perform “Processing after operations”, after completing adjustment.

CN982 of VC-234 board

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	9	RF AGC OUT
2	XCPC IN	10	REC RF
3	IR VIDEO	11	RF SWP
4	AFC F0	12	CAP FG
5	BPF MONI	13	EVF BL
6	PB RF	14	EVF BL 4.75V
7	RF AGC IN	15	VCO
8	REG GND	16	EVF VG

Table 5-2-1.

[Procedure after operations]

- 1) Connect the adjustment remote commander, and turn on the HOLD switch.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.
- 5) Remove the power supply from the unit.

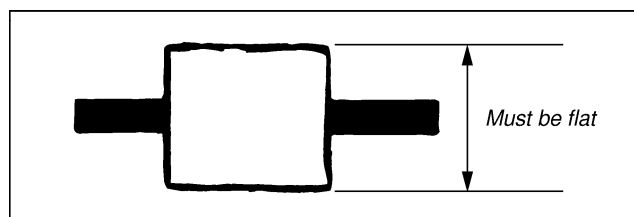


Fig. 5-2-1.

5-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment to Required

- 1) TV monitor
- 2) Oscilloscope (dual-phenomenon, band width above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
- 3) Frequency counter
- 4) Pattern generator with video output terminal
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Regulated power supply
- 11) Alignment tapes
 - For tracking adjustment (WR5-1CP)
Parts code : 8-967-995-07
 - For video frequency characteristics adjustment (WR5-7CE)
Parts code : 8-967-995-18
 - For checking Standard 8 mode operations
 - For LP (WR5-4CL)
Parts code : 8-967-995-56
 - For SP (WR5-5CSP)
Parts code : 8-967-995-47
 - Note:** The following alignment tapes can also be used.
 - 1) WR5-3CL (8-967-995-36)
 - 2) WR5-4CSP (8-967-995-46)
 - For checking Hi8 mode operations
 - For LP (WR5-8CLE)
Parts code : 8-967-995-57
 - For SP (WR5-8CSE)
Parts code : 8-967-995-48
 - For Checking AFM stereo operations (WR5-9CS)
Parts code : 8-967-995-28
 - For BPF adjustment (WR5-11CS)
Parts code : 8-967-995-76
- 12) Adjustment remote commander (J-6082-053-B)
- 13) CPC-7 jig (J-6082-382-A)
- 14) Power code (J-6082-223-A)
 - Note:** Connect the adjustment remote commander to the LANC jack, and set the HOLD switch to the "ADJ" side.
- 15) AFM DEV jig (J-6082-312-A)
- 16) IR receiver jig (J-6082-383-A)

3-1-2. Precautions on Adjusting

Note1: TR model / TRV model

TR model: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E

TRV model: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

- 1) The adjustments of this unit are performed in the VTR mode or camera mode.
To set to the VTR mode, set the power switch to "VTR or PLAYER" or set the "Forced VTR Power ON mode" using the adjustment remote commander (Note 2).
To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjustment remote commander (Note 3).
After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note 4)
- 2) By setting the "Forced VTR Power ON mode" or "Forced Camera Power ON mode", the video section can be operate even if the front panel block (MA-374/375 board, power switch, microphone unit) has been removed. When removing the front panel block, disconnect the following connector.
 1. VC-234 board CN972 (20P 0.5mm)
- 3) The cabinet (R) (Camera function switch (CF-66/67 board), LCD block (TRV model only), Viewfinder) need not be connected. But removing the cabinet (R) (removing the VC-234 board CN975) means removing the lithium 3V power supply (CF-66/67 board BH001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and data on history use (data of page: 2, address: A2 to AA). (Refer to the "Service Mode" for the data on the history use.) To remove the cabinet (R), disconnect the following connectors.
 1. VC-234 board CN975 (45P, 0.5mm)
 2. DD-134 board CN933 (8P, 1.0mm)(TRV model only)
- 4) The video light board (VL-28/29 board) need not be connected. To remove, disconnect the following connector. (Except for CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
 1. VL-28/29 board CN151 (8P, 0.5mm)
- 5) The lens block (CD-239/240 board) need not be connected. To remove, disconnect the following connectors.
 1. VC-234 board CN501 (14P, 0.5mm)
 2. VC-234 board CN551 (24P, 0.5mm)

Note2: Setting the "Forced VTR Power ON" mode (VTR mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the VTR power to be turned on with the front panel block removed.
After completing adjustments, be sure to exit the "Forced VTR Power ON mode".

Note3: Setting the "Forced Camera Power ON" mode (Camera mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the camera power to be turned on with the front panel block removed.
After completing adjustments, be sure to exit the "Forced Camera Power ON mode".

Note4: Exiting the "Forced Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-234 board CN982. Connect the measuring instruments via the CPC-7 jig (J-6082-382-A). The following table lists the pin numbers and signal names of CN982.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	9	RF AGC OUT
2	XCPC IN	10	REC RF
3	IR VIDEO	11	RF SWP
4	AFC F0	12	CAP FG
5	BPF MONI	13	EVF BL
6	PB RF	14	EVF BL 4.75V
7	RF AGC IN	15	VCO
8	REG GND	16	EVF VG

Table 5-3-1.

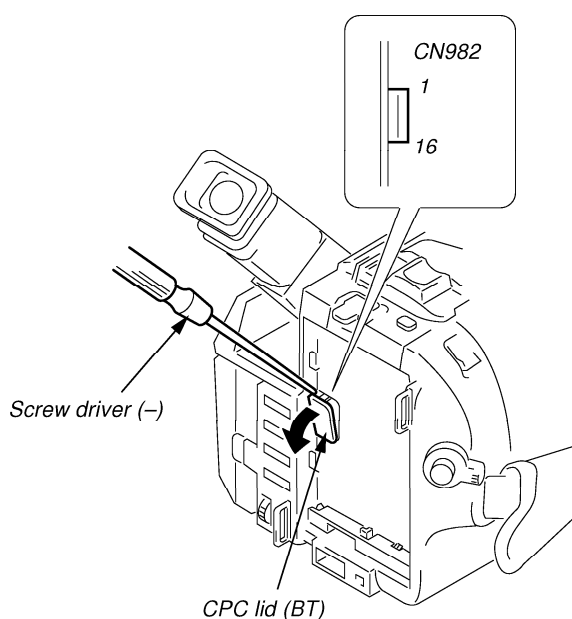


Fig. 5-3-1.

3-1-4. Connecting the Equipments

Connecting the measuring instruments as shown in Fig. 5-3-2 and perform the adjustments.

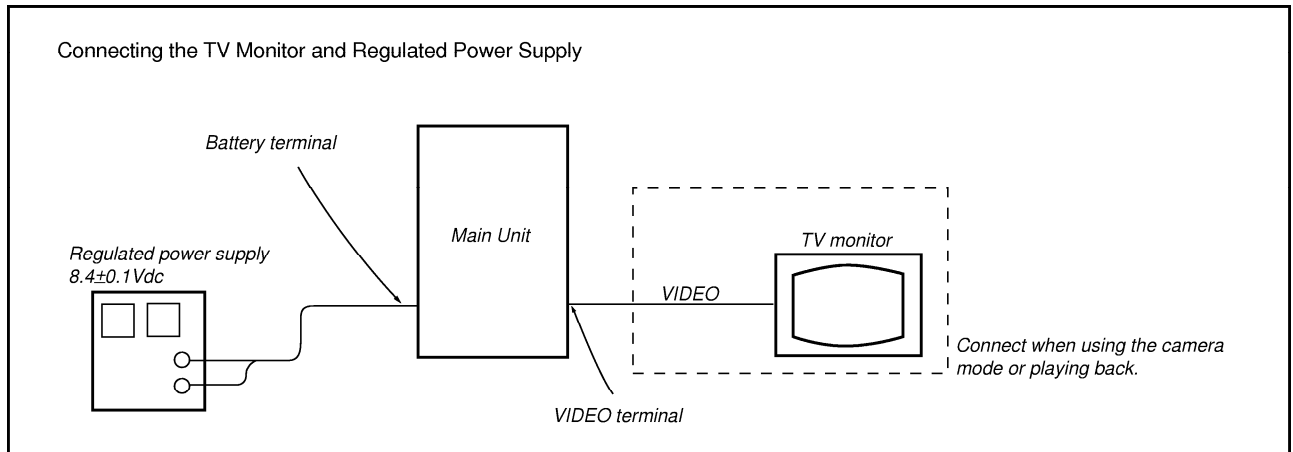


Fig. 5-3-2.

3-1-5. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

Name	Record-ing mode	Tape type	Tape speed	Usage
Tracking WR5-1CP	Standard 8 mm	MP	SP	Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	Hi8	ME	LP	Frequency characteristics adjustment
Operation check (SP mode) WR5-5CSP	Standard 8 mm	MP	SP	Checking operations
Operation check (SP mode) WR5-8CSE	Hi8	ME	SP	
Operation check (LP mode) WR5-4CL	Standard 8 mm	MP	LP	
Operation check (LP mode) WR5-8CLE	Hi8	ME	LP	
AFM stereo Operation check WR5-9CS	Standard 8 mm	MP	SP	AFM stereo Checking operations
BPF adjustment WR5-11CS	Hi8	MP	SP	BPF adjustment

3-1-6. Input/Output Level and Impedance

Video input/output

Phono jack, 1 Vp-p, 75 Ω ,
unbalanced, sync negative

S video input/output (CCD-TR717E/TR918E/TRV67E/TRV87E
only)

4-pin mini DIN

Luminance signal:

1 Vp-p, 75 Ω , unbalanced, sync negative

Chrominance signal:

0.286 Vp-p 75 Ω , unbalanced

Audio input/output

Phono jack,

Input: -7.5 dBs, input impedance more
than 47 k Ω

Output: -7.5 dBs, (at load impedance 47 k Ω), impedance
less than 2.2 k Ω

3-1-7. Recording Mode (Standard 8/Hi8) switching (CCD-TR717E/TR918E/TRV67E/TRV87E)

The record mode (Standard 8/Hi8) of this unit switches as shown in the following table. The playback mode (Standard 8/Hi8) switches automatically according to the recording mode of the tape played back.

Tape Used	Recording Mode
ME	Hi8
Hi8 MP	
MP	Standard 8

Fig. 5-3-3. Shows the color bar signals recorded on the alignment tape.

Note : Measure using the VIDEO terminal (Terminated at 75 Ω).

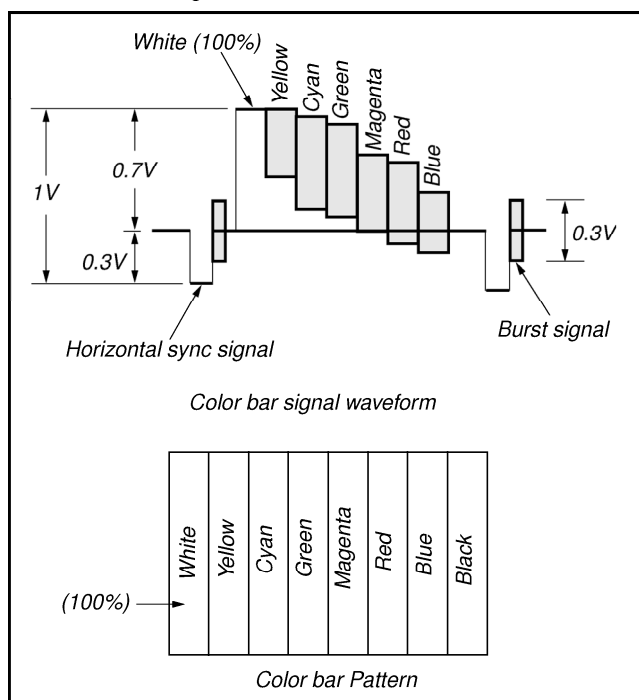


Fig. 5-3-3. Color Bar Signals of the Alignment Tape

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initialization of D, E, F, 7 Page Data

If the D, E, F, 7 page data is erased due to some reason, perform “1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA”, of “5-1. CAMERA SECTION ADJUSTMENT”

3-3. SERVO SYSTEM ADJUSTMENTS

1. CAP FG Offset Adjustment (VC-234 board)

Improve the capstan servo characteristic. If it is not correct, jitters will increase.

Mode	Camera recording (SP mode)
Subject	Arbitrary
Measurement Point	Pin ⑫ of CN982 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64
Specified value	Duty = $50 \pm 1 \%$

Adjusting method:

- 1) Set to the Camera recording mode (SP mode).
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 6, address: 01, set data: 81, and press the PAUSE button of the adjustment remote commander. (to start up automatic CAP FG offset adjustment.)
- 4) Select page: 6, address: 02, and check that the data is “01”.
- 5) Check that Duty of CAP FG signal satisfies the specified value. If not, select page: 6, address: 01, set data: 00, and press the PAUSE button, and then, repeat steps 1) to 5).
- 6) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 7) Select page: 0, address: 01, and set data: 00.

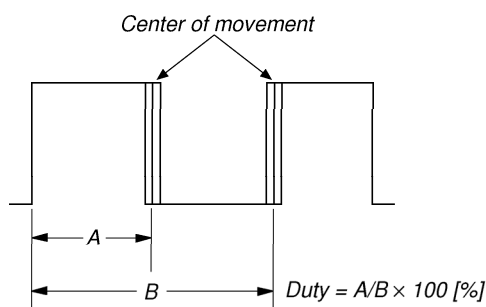


Fig. 5-3-4.

2. Switching Position Adjustment (VC-234 board)

If deviated in this case causes switching noise or jitter on the played back screen.

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1CP)
Measurement Point	CH1: Pin ⑪ of CN982 (RF SWP) CH2: Pin ⑥ of CN982 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	62, 63
Specified Value	$t_1 = 0 \pm 10 \mu\text{sec}$

Adjusting Method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 22, set data: C0, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: F, address: 62, change the data and minimize “t1”, and then press the PAUSE button of the adjustment remote commander. (Coarse adjustment)
- 4) Select page: F, address: 63, change the data and adjust so that the switching position (t1) becomes the specified value. (Fine adjustment)
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
- 7) Select page: 0, address: 01, and set data: 00.

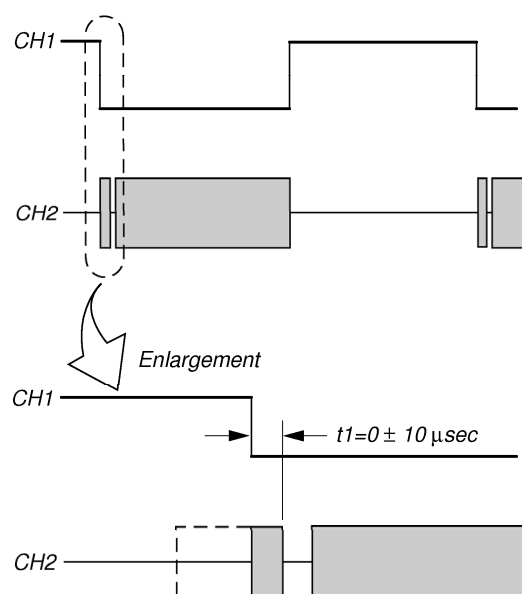


Fig. 5-3-5.

3-4. VIDEO SYSTEM ADJUSTMENTS

Video system adjustments must be performed in the following order.

[Adjusting Order]

- 1. 28MHz origin oscillation adjustment
- 2. AFC f₀ adjustment
- 3. Filter f₀ adjustment
- 4. Y OUT level adjustment
- 5. C OUT level adjustment
- 6. REC Y current adjustment
- 7. REC C/AFM Current Adjustment

1. 28 MHz Origin Oscillation Adjustment (VC-234 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of IC201 or pin ⑫ of IC501
Measuring Instrument	Frequency counter
Adjustment Pag	F
Adjustment Address	4D
Specified Value	f=14187500 ± 55Hz

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 61, and set data: 30.
- 4) Select page: F, address: 4D, change the data and set the clock frequency (f) to the specified value.
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: 6, address: 61, and set data: 10.
- 7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 8) Select page: 0, address: 01, and set data: 00.

VC-234 BOARD

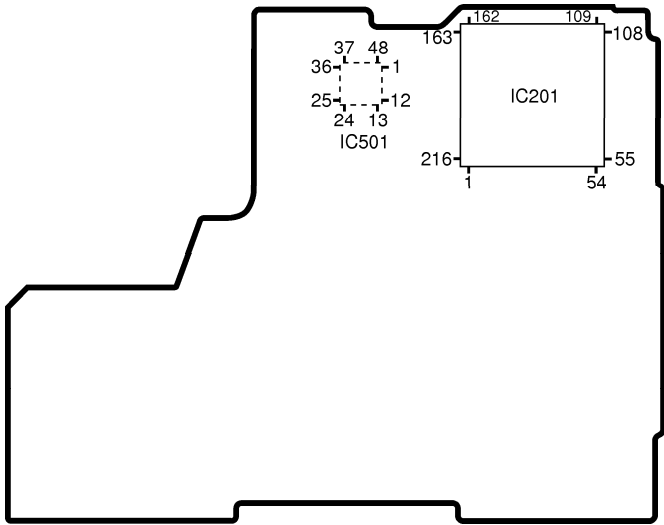


Fig. 5-3-6.

2. AFC f₀ Adjustment (VC-234 board)

Adjust the pull-in range of the A/D converted clock generator during playback.

Mode	VTR stop
Signal	No signal
Measurement Point	Display data of page: 6, address: 02
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	65
Specified Value	01

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 01, set data: 4D, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 01, set data: C5, and press the PAUSE button.
(The AFC f₀ adjustment is performed and the adjustment data is stored in page: F, address: 65.)
- 4) Select page: 6, address: 02, and check that the data is "01".
- 5) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 6) Select page: 2, address: 01, set data: 00, and press the PAUSE button.
- 7) Select page: 0, address: 01, and set data: 00.

3. Filter f_0 Adjustment (VC-234 board)

Adjust the f_0 frequency of the IC641 built-in filter.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN982 (IR VIDEO)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: ON)
Adjustment Page	F
Adjustment Address	66
Specified Value	Minimum residual chroma signal components

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 01, set data: 4F, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 2, address: 05, and set data: 40.
- 4) Select page: F, address: 66, change the data and minimize the residual chroma signal components (A).
(The data of address: 66 should be "70" to "7F".)
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 7) Select page: 2, address: 05, and set data: 00.
- 8) Select page: 0, address: 01, and set data: 00.

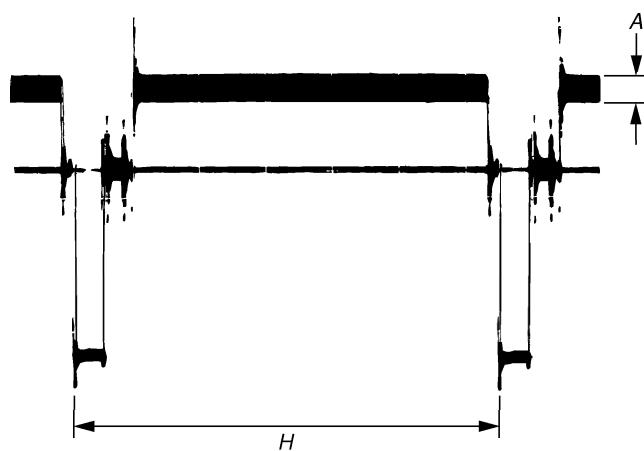


Fig. 5-3-7.

4. Y OUT Level Adjustment (VC-234 board)

Set the Y signal output level. (Adjust the D/A converter out put level of IC641.)

Mode	VTR stop
Signal	No signal
Measurement Point	Hi8 model: Y signal terminal of S VIDEO terminal (75Ω terminated) Standard8 model: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	67
Specified Value	A=300 ± 5mV

Note1: Hi8 model:

Insert the plug into the S VIDEO terminal.

Standard8 model:

Insert the plug into the VIDEO terminal.

Note2: Hi8 model:

CCD-TR717E/TR918E/TRV67E/TRV87E

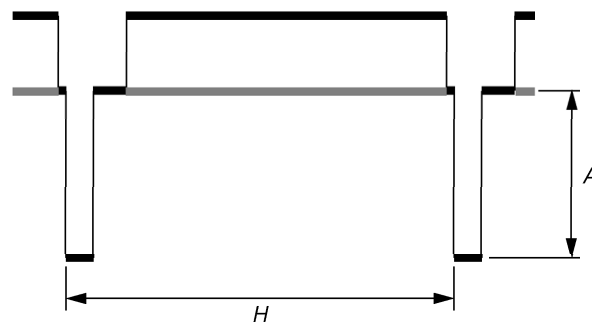
Standard8 model:

CCD-TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/
TRV48E/TRV57E

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 61, and set data: 30.
- 4) Select page: F, address: 67, change the data and set the SYNC level (A) to the specified value.
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: 6, address: 61, and set data: 10.
- 7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 8) Select page: 0, address: 01, and set data: 00.

Hi8 model



Standard8 model

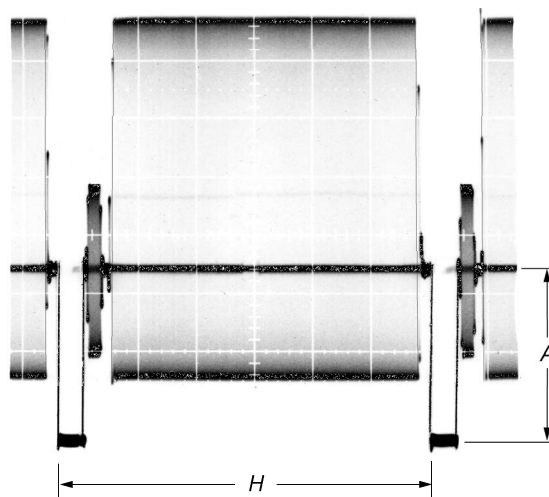


Fig. 5-3-8.

5. C OUT Level Adjustment (VC-234 board)

Set the chroma signal output level. (Adjust the D/A converter output level of IC641.)

Mode	VTR stop
Signal	No signal
Measurement Point	Hi8 model: Chroma signal terminal of S VIDEO terminal (75Ω terminated) Standard8 model: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	68
Specified Value	A=300 ± 5mV

Note1: Hi8 model:

Insert the plug into the S VIDEO terminal.

Standard8 model:

Insert the plug into the VIDEO terminal.

Note2: Hi8 model:

CCD-TR717E/TR918E/TRV67E/TRV87E

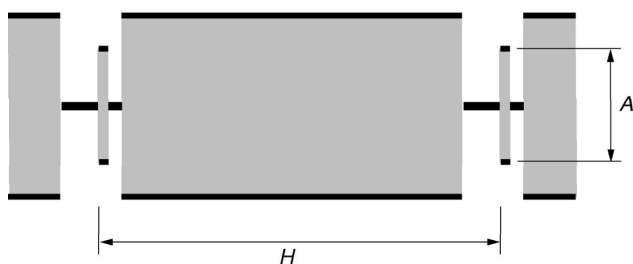
Standard8 model:

CCD-TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/
TRV48E/TRV57E

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 61, and set data: 30.
- 4) Select page: F, address: 68, change the data and set the burst level (A) to the specified value.
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: 6, address: 61, and set data: 10.
- 7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 8) Select page: 0, address: 01, and set data: 00.

Hi8 model



Standard8 model

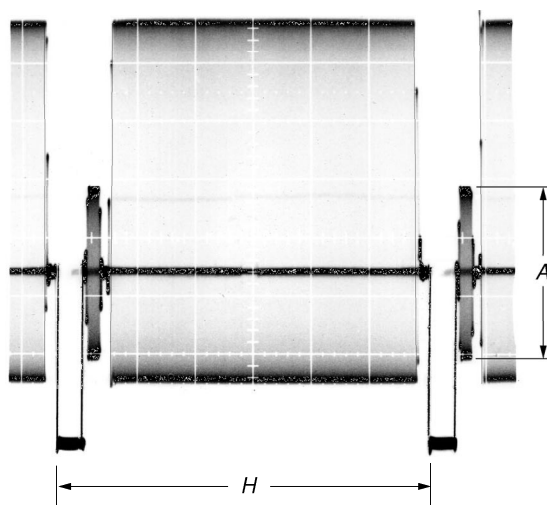


Fig. 5-3-9.

6. REC Y Current Adjustment (VC-234 board)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)	
Signal	No signal	
Measurement Point	Pin ⑩ of CN982 (REC RF)	
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)	
Adjustment Page	F	7
Adjustment Address	6A, 6B	F9
Specified Value	A=280 ± 5mV (Hi8 model) A=250 ± 5mV (Standard 8 model)	

Note: PLAYER model:

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/
TRV87E :AEP, UK, EE, NE, RU

Hi8 model:

CCD-TR717E/TR918E/TRV67E/TRV87E

Standard8 model:

CCD-TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/
TRV47E/TRV48E/TRV57E

Preparations only for the PLAYER model:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Only for the PLAYER model, select page: D, address: 14, after memorizing the data, set the bit value of bit1 to "1". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
- 3) Select page: D, address: 15, and memorize the data.
- 4) Only for the PLAYER model, select page: D, address: 15, and set the bit value of bit7 to "0".
- 5) Insert a tape, and set to recording mode. (Use the wireless remote commander of 8mm VCR, or connect Pin ⑨ of IC803 of VC-234 board and GND with 4.7kΩ resistor for a second.)
4.7kΩ resistor: 1-249-425-11

Adjusting method:

- 1) Insert a tape, and set to recording mode.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: E, address: FB, set data: 06, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: F, address: 71, after note down the data, set data: 00, and press the PAUSE button.
- 5) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
- 6) Select page: 6, address: 63, and set data: 01.
- 7) Select page: F, address: 6B, change the data and set the Y signal level (A) to the specified value.
- 8) Press the PAUSE button.
- 9) Select page: F, address: 6A, and set the same data as page: F, address: 6B, and press the PAUSE button.
- 10) Only for Hi8 model, select page: F, address: 6B, and read the data (D_{6B}).
- 11) Only for Hi8 model, convert D_{6B} to decimal notation, and obtain D_{6B}'. (Refer to tabel 5-4-1. Hexadecimal-decimal conversion table.)
- 12) Only for Hi8 model, calculate D_{F9}' using following equations (Decimal calculation), convert it to a hexadecimal number, and input to page: 7, address: F9.
When $D_{6B}' \geq 243$ (When $D_{6B} \geq F3$)
 $D_{F9}' = 255$ ($D_{F9} = FF$)
When $D_{6B}' < 243$ (When $D_{6B} < F3$)
 $D_{F9}' = D_{6B}' + 12$
- 13) Press the PAUSE button.

- 14) Select page: F, address: 71, set the data noted down at step 4), and press the PAUSE button.
- 15) Select page: E, address: FB, set data: 04, and press the PAUSE button.
- 16) Select page: 6, address: 63, and set data: 00.
- 17) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 18) Select page: 0, address: 01, and set data: 00.

Processing after completed adjustment only for for the PLAYER model:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Only for the PLAYER model, select page: D, address: 14, and set the data memorized at step 2) of "Preparations only for the PLAYER model".
- 3) Press the PAUSE button.
- 4) Only for the PLAYER model, select page: D, address: 15, and set the data memorized at step 3) of "Preparations only for the PLAYER model".
- 5) Press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

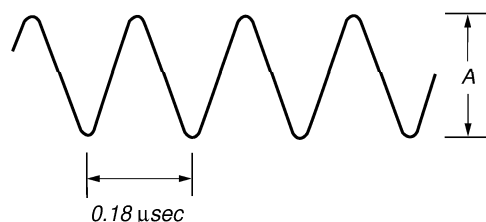


Fig. 5-3-10.

VC-234 BOARD

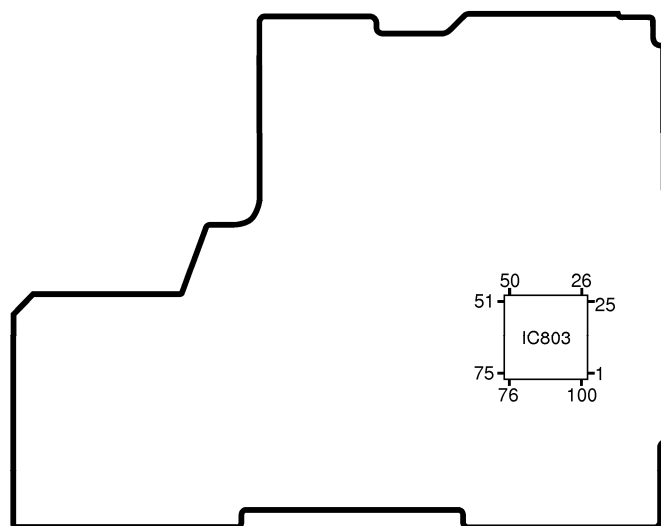


Fig. 5-3-11.

7. REC C/AFM Current Adjustment

Note: PLAYER model:

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/
TRV87E: AEP, UK, EE, NE, RU

Hi8 model:

CCD-TR717E/TR918E/TRV67E/TRV87E

Standard8 model:

CCD-TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/
TRV47E/TRV48E/TRV57E

7-1. Preparations only for the PLAYER model

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Only for the PLAYER model, select page: D, address: 14, after memorizing the data, set the bit value of bit1 to "1". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
- 3) Select page: D, address: 15, and memorize the data.
- 4) Only for the PLAYER model, select page: D, address: 15, and set the bit value of bit7 to "0".
- 5) Insert a Hi8 ME tape, and set to VTR recording mode. (Use the wireless remote commander of 8mm VCR, or connect Pin ③ of IC803 of VC-234 board and GND with 4.7k Ω resistor for a second.)

4.7k Ω resistor: 1-249-425-11

7-2. REC C Current Check (VC-234 board)

Check the recording current levels of the REC Chroma signal. If it is too low, chroma signal noise in played back picture will be increased. If too high, Y signal noises will increase and white modulation noises will be produced.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑩ of CN982 (REC RF)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Specified Value	A=54.0 $\pm$ 4.0mV (Hi8 model) A=48.2 $\pm$ 3.0mV (Standard 8 model)

Adjusting method:

- 1) Insert a Hi8 ME tape, and set to recording mode.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 6, address: 61, and set data: 30.
- 5) Select page: E, address: FB, set data: 05, and press the PAUSE button.
- 6) Select page: F, address: 71, after note down the data, set data: 00, and press the PAUSE button.
- 7) Check that the REC chroma signal level (A) satisfies the specified value, and note down the signal level.
- 8) Select page: F, address: 71, set the data noted down at step 6), and press the PAUSE button.
- 9) Select page: E, address: FB, set data: 04, and press the PAUSE button.
- 10) Select page: 6, address: 61, and set data: 10.
- 11) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 12) Select page: 0, address: 01, and set data: 00.
- 13) Perform "RECAFM Current Adjustment" and "Processing after completed adjustment only for the PLAYER model".

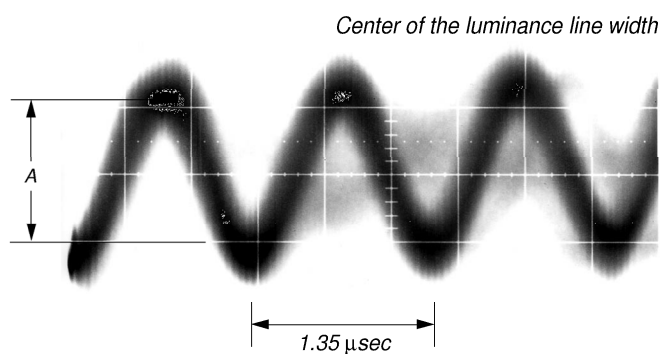


Fig. 5-3-12

7-3. REC AFM Current Adjustment (VC-234 board)

Set the recording levels of the REC AFM signal. If the level is too low, the audio S/N will be deteriorated. If too high, color beats will be produced on the self-recording / playback image.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑩ of CN982 (REC RF)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Adjustment Page	F
Adjustment Address	71
Specified Value	$A = (\text{REC Chroma signal level}) \times 0.309$ $\pm 0.9\text{mV}$ (Note2)

Note1: Only for the STEREO model, do not insert any plug into the AUDIO (R) terminal.

Note2: REC Chroma signal level is noted down at step 7) of "REC C Current Check".

Adjusting method:

- 1) Insert a Hi8 ME tape, and set to recording mode.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: E, address: FB, set data: 07, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: F, address: 71, change the data and set the REC AFM signal level (A) to the specified value.
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: E, address: FB, set data: 04, and press the PAUSE button.
- 7) Select page: 0, address: 01, and set data: 00.
- 8) Perform "Processing after completed adjustment only for the PLAYER model".

7-4. Processing after completed adjustment only for the PLAYER model

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Only for the PLAYER model, select page: D, address: 14, and set the data memorized at step 2) of "Preparations only for the PLAYER model".
- 3) Press the PAUSE button.
- 4) Only for the PLAYER model, select page: D, address: 15, and set the data memorized at step 3) of "Preparations only for the PLAYER model".
- 5) Press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

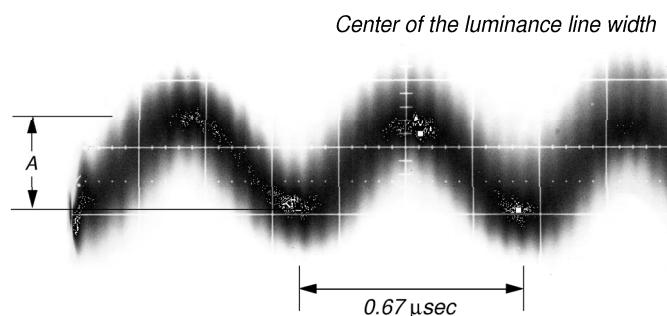


Fig. 5-3-13.

3-5. IR TRANSMITTER ADJUSTMENTS (CCD-TR918E/TRV87E)

Adjust using a IR receiver jig (J-6082-383-A).

Note : If the distance between the IR receiver jig and the camcorder is below 1m, cover the LASER LINK emitter with a ND filter. (For example, when the distance is 30cm to 50cm, cover the LASER LINK emitter with a ND filter 1.0.)

Switch setting:

LASER LINK ON (Red LED is lit)

1. IR Video Carrier Frequency Adjustment (VC-234 board)

Mode	Camera standby
Subject	Arbitrary
Measurement Point	Pin ⑤ of CN003 of IR receiver jig (RF) (Or Pin ⑩ of IC751 of VC-234 board)
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	80
Specified Value	$f = 11.55 \pm 0.05$ MHz

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

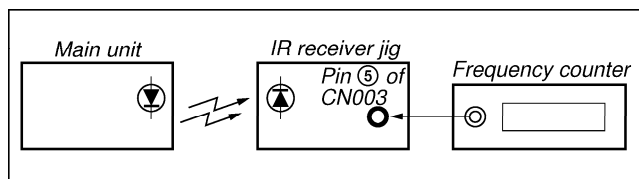


Fig. 5-3-14.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 01, set data: 37, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: F, address: 80, change the data, and set the video carrier frequency (f) to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 6) Select page: 0, address: 01, and set data: 00.

2. IR Video Deviation Adjustment (VC-234 board)

Mode	Camera standby
Subject	Arbitrary
Measurement Point	VIDEO OUT terminal of IR receiver jig (Terminated at 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	7E
Specified Value	$A = 0.87 \pm 0.04$ V

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

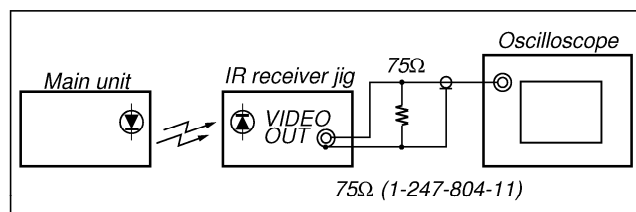


Fig. 5-3-15.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 01, set data: 39, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: F, address: 7E, and change the data, set the video signal amplitude (A) to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 6) Select page: 0, address: 01, and set data: 00.

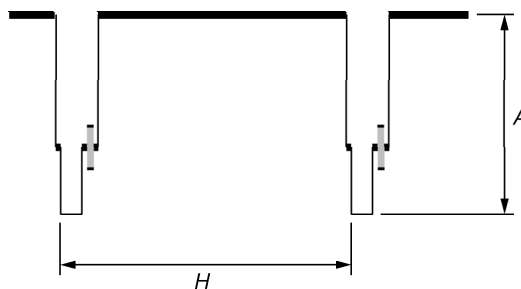


Fig. 5-3-16.

3. IR Audio Deviation Adjustment (VC-234 board)

Mode	VTR recording
Signal	Audio signal : 400Hz, -7.5dBs : L or R of AUDIO terminal Video signal : No signal : VIDEO terminal
Measurement Point	AUDIO L terminal and AUDIO R terminal of IR receiver jig (Terminated at 47kΩ)
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	7F
Specified Value	Signal level: -7.5 ± 2.0 dBs Level difference of L and R: Below 2dB

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Connect the audio level meter to the AUDIO L terminal of the IR receiver jig.
- 3) Select page: F, address: 7F, change the data and set the 400Hz audio signal level to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Connect the audio level meter to the AUDIO R terminal of the IR receiver jig.
- 6) Check that the 400Hz audio signal level is within the specified value. If outside, repeat from step 2).
- 7) Select page: 0, address: 01, and set data: 00.

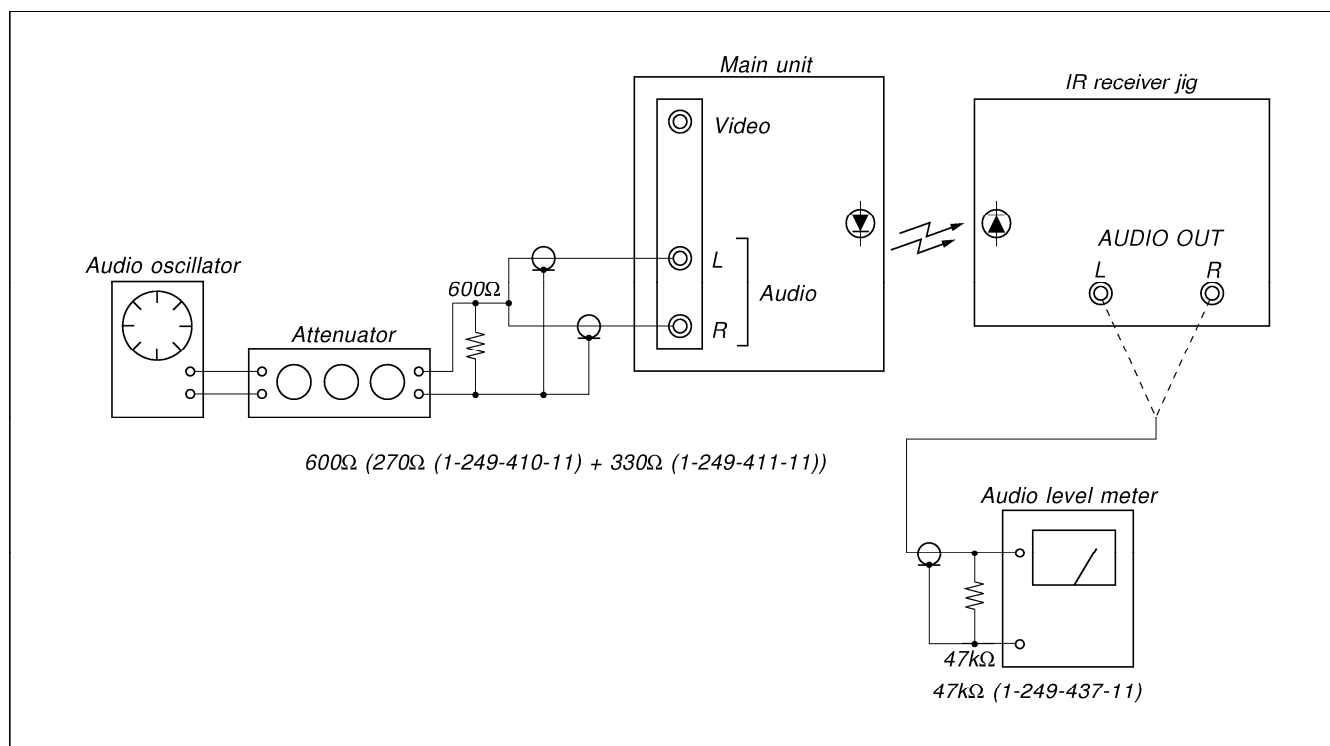


Fig. 5-3-17.

3-6. STEREO AUDIO SYSTEM ADJUSTMENT (CCD-TR918E/TRV87E)

- Perform the adjustment using color bar signal as a video signal input for the VIDEO terminal.
- The items to be adjusted for the R channel will be indicated within the [], in regard to the adjusting items to be adjusted for both L and R channels.
- Set the Hi-Fi sound switch in the menu display to “STEREO” position unless specified otherwise.

Note :

- 1) When inputting the audio signal, input same signal to both the L and R channels, unless otherwise.
- 2) Be sure insert the plug (Shorting plug or dummy plug, etc) into the AUDIO terminal (Right). If the plug is not inserted, the monaural mode will be set, and correct adjustments can not be carried out.

[Monaural mode]

During recording REC AFM RF 1.7MHz carrier will not be output.

During playback The L + R signal will be output from the AUDIO terminal (Left).

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 5-3-18, and perform adjustments at the power switch [VTR or PLAYER] position.

[Adjustment Procedure]

- 1) 1.5MHz deviation adjustment
- 2) 1.7MHz deviation adjustment
- 3) BPF adjustment

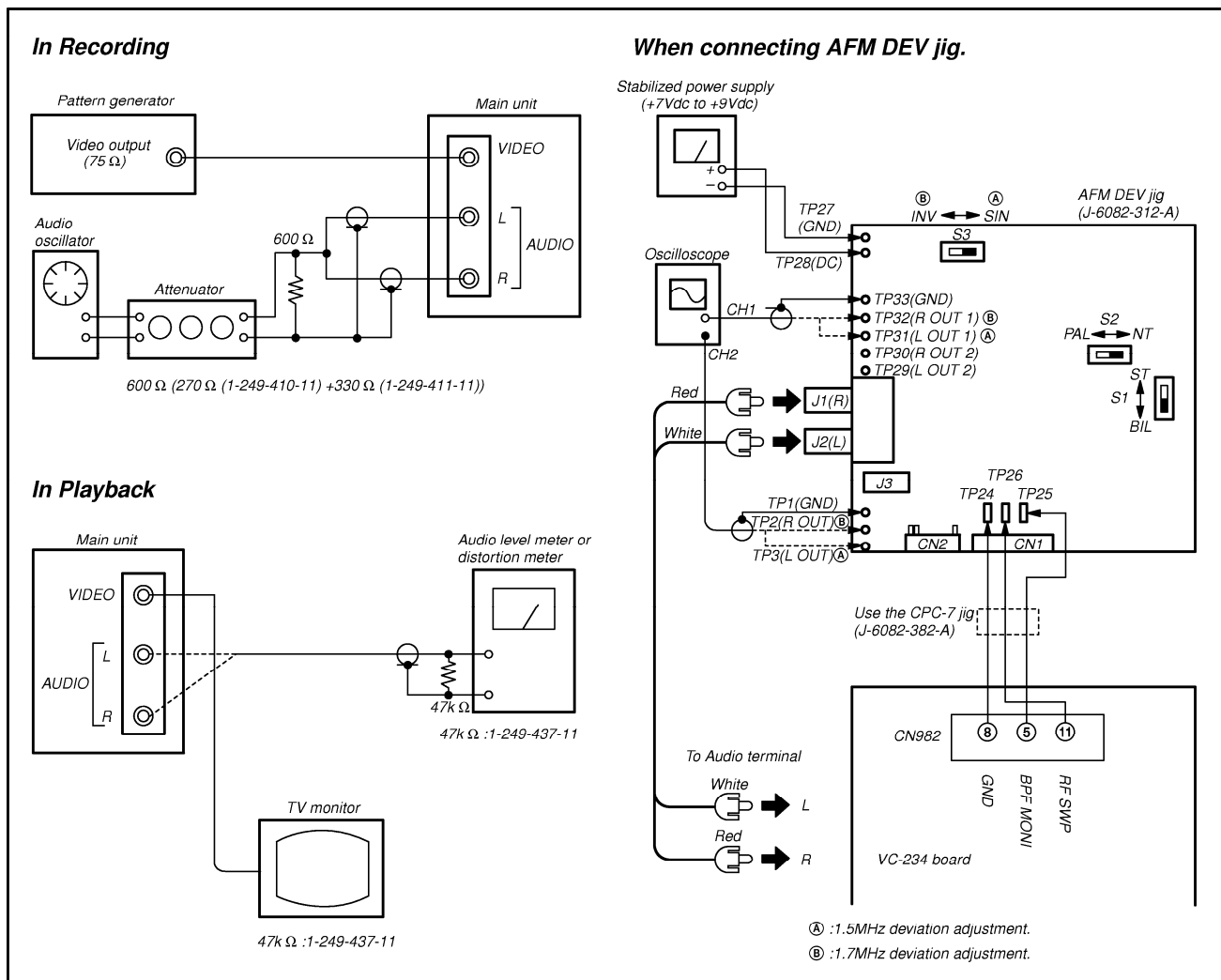


Fig. 5-3-18.

1. Deviation Adjustment

1-1. Connections

- 1) Connect TP24, TP25 and TP26 of the AFM DEV jig to CN982 of the VC-234 board.
 TP24(GND) Pin ⑧ of CN982
 TP25(REC RF) Pin ⑨ of CN982
 TP26(RF SWP) Pin ⑩ of CN982
- 2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
- 3) Connect TP28 (DC), TP27 (GND) of the AFM DEV jig to the DC power supply (+7Vdc to +9Vdc).

1-2. Preparations only for the PLAYER model

Note: PLAYER model:

CCD-TR918E/TRV87E: AEP, UK, EE, NE, RU

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Only for the PLAYER model, select page: D, address: 14, after memorizing the data, set the bit value of bit1 to "1". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
- 3) Select page: D, address: 15, and memorize the data.
- 4) Only for the PLAYER model, select page: D, address: 15, and set the bit value of bit7 to "0".
- 5) Insert a tape, and set to recording mode. (Use the wireless remote commander of 8mm VCR, or connect Pin ⑨ of IC803 of VC-234 board and GND with 4.7kΩ resistor for a second.)
 4.7kΩ resistor: 1-249-425-11

1-3. 1.5 MHz Deviation Adjustment (VC-234 board)

Sets the spectrum of the L-ch ((L+R)/2 signal) level modulated during recording. If deviated, the crosstalk signal of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the left and right audio input terminal
Measurement Point	CH1: AFM DEV jig TP31 CH2: AFM DEV jig TP3
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	F
Adjustment Address	7B
Specified Value	The level difference between CH1 signal and CH2 signal should be minimum.

Switch setting:

Set the AFM DEV jig switches to the following positions.

S1 BIL Position
 S2 PAL Position
 S3 SIN Position

Adjusting method:

- 1) Set to recording mode. (Only for the PLAYER model, refer to "Preparations only for the PLAYER model".)
- 2) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
- 3) Set the oscilloscope to the ADD mode and CH2 to the INV (invert) mode.
- 4) Select page: 0, address: 01, and set data: 01.
- 5) Select page: F, address: 7B, change the data and minimize the audio signal level difference (A).
- 6) Press the PAUSE button of the adjustment remote commander.
- 7) Select page: 0, address: 01, and set data: 00.
- 8) Perform "1.7 MHz Deviation Adjustment" and "Processing after completed adjustment only for the PLAYER model".

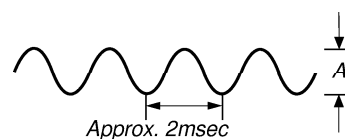


Fig. 5-3-19.

1-4. 1.7 MHz Deviation Adjustment (VC-234 board)

Sets the spectrum of the R-ch ((L-R)/2 signal) level modulated during recording. If deviated, the crosstalk signal of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the left and right audio input terminal
Measurement Point	CH1: AFM DEV jig TP32 CH2: AFM DEV jig TP2
Measuring Instrument	Oscilloscope ADD mode CH2 normal mode
Adjustment Page	F
Adjustment Address	7C
Specified Value	The level difference between CH1 signal and CH2 signal should be minimum.

Switch setting:

Set the AFM DEV jig switches to the following positions.

S1 BIL Position
S2 PAL Position
S3 INV Position

Adjusting method:

- 1) Set to recording mode. (Only for the PLAYER model, refer to "Preparations only for the PLAYER model".)
- 2) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
- 3) Set the oscilloscope to the ADD mode and CH2 to the normal mode.
- 4) Select page: 0, address: 01, and set data: 01.
- 5) Select page: F, address: 7C, change the data and minimize the audio signal level difference (A).
- 6) Press the PAUSE button of the adjustment remote commander.
- 7) Select page: 0, address: 01, and set data: 00.
- 8) Perform "Processing after completed adjustment only for the PLAYER model".

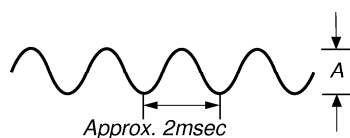


Fig. 5-3-20.

1-5. Processing after completed adjustment only for the PLAYER model

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Only for the PLAYER model, select page: D, address: 14, and set the data memorized at step 2) of "Preparations only for the PLAYER model".
- 3) Press the PAUSE button.
- 4) Only for the PLAYER model, select page: D, address: 15, and set the data memorized at step 3) of "Preparations only for the PLAYER model".
- 5) Press the PAUSE button.
- 6) Select page: 0, address: 01, and set data: 00.

2. BPF f0 Adjustment (VC-234 board)

Sets the BPF passing frequency so that the AFM signal can separate from the playback RF signal properly. If deviated, the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11CS)
Measurement Point	Audio output terminal left or right
Measuring Instrument	distortion meter
Adjustment Page	F
Adjustment Address	7D
Specified Value	The Main and Sub channel distortion rate should be almost the same (within $\pm 1\%$) and minimum.

Adjusting method :

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Set the Hi-Fi sound switch (menu display) to "2".
- 3) Select page: F, address: 7D, change the data and minimize the distortion rate.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Set the Hi-Fi sound switch (menu display) to "1".
- 6) Select page: F, address: 7D, change the data and minimize the distortion rate.
- 7) Press the PAUSE button of the adjustment remote commander.
- 8) Repeat steps 2) to 7) and set the data of address: 7D so that the distortions rates when the Hi-Fi sound switch is set to "2" and set to "1" respectively are almost the same and minimum.
- 9) Press the PAUSE button of the adjustment remote commander.
- 10) Select page: 0, address: 01, and set data: 00.
- 11) Set the Hi-Fi sound switch to "STEREO".

3-7. MONAURAL AUDIO SYSTEM ADJUSTMENT (CCD-TR317E/TR417E/TR427E/TR617E/ TR717E/TRV37E/TRV47E/TRV48E/TRV57E/ TRV67E)

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments besides the video system measuring instruments as shown Fig. 5-3-21.

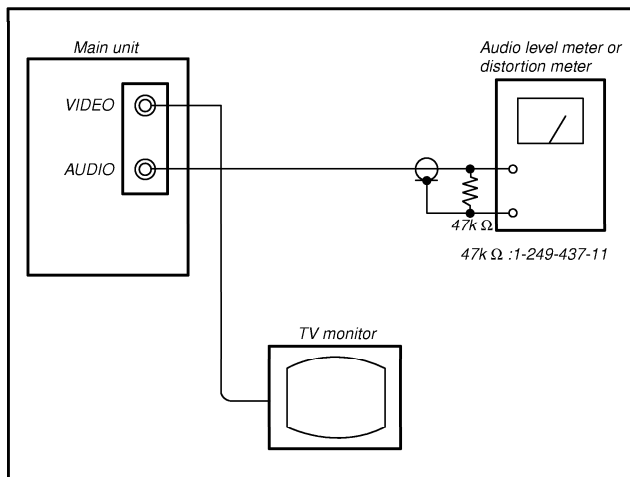


Fig. 5-3-21.

1. 1.5 MHz Deviation Adjustment (VC-234 board)

Adjust to the optimum audio FM signal deviation.

If the adjustment is not correct, its playback level will differ from that of other units.

Mode	Playback
Signal	Alignment tape: For checking the operation (WR5-5CSP)
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	7B
Specified Value	$-7.5 \pm 0.5\text{dB}$

Adjusting method :

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 7B, change the data and set the 400Hz signal level to the specified value.
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

2. BPF f_0 Adjustment (VC-234 board)

Adjust to the optimum audio BPF characteristics of the IC.

If the adjustment is not correct, the distortion rate and S/N ratio will worsen.

Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11CS)
Measurement Point	Audio output terminal
Measuring Instrument	Distortion meter
Adjustment Page	F
Adjustment Address	7D
Specified Value	The distortion rate should be and minimum.

Adjusting method :

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 7D, change the data and minimize the distortion rate.
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

5-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander

- 1) Connect the adjustment remote commander to the LANC terminal.
- 2) Set the HOLD switch of the adjustment remote commander to “HOLD” (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.



Fig. 5-4-1.

- 3) Operate the adjustment remote commander as follows.
 - Changing the page
The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH- button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

- Changing the address
The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
 - Changing the data (Data setting)
The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
 - Writing the adjustment data
The PAUSE button must be pressed to write the adjustment data (D, E, F, 7 page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
- 4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

②

Lower digit of hexadecimal Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (<i>A</i>)	B (<i>b</i>)	C (<i>c</i>)	D (<i>d</i>)	E (<i>E</i>)	F (<i>F</i>)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (<i>A</i>)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (<i>b</i>)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (<i>c</i>)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (<i>d</i>)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (<i>E</i>)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (<i>F</i>)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis () shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (*bd*);

Because the upper digit of the adjustment number is B (*b*), and the lower digit is D (*d*), the meeting point “189” of ① and ② in the above table is the corresponding decimal number.

Table. 5-4-1.

4-3. SERVICE MODE

Note: After the completion of the all adjustments, cancel the service mode by either of the following ways.

- 1) Unplug the main power supply and remove the lithium battery.
(In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
- 2) After data on page: D and F is restored, return data of the address: 01 on page: 0 to 00. And when data on page: 2 is changed, return the data to the original condition.

1. Test Mode Setting

Set/release each test mode. Set page: 0, address: 01, data: 01 before setting the data of page D and F.

Page F	Address 22
--------	------------

Data	Function
80	Normal
81	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10
--------	------------

Data	Function
00	Normal
01	Camera power ON
02	VTR power ON
03	Camera + VTR power ON

- * For page D and F, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjustment remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off.
- * Be sure to return the data of page: F, address: 22 to 80, and the data of page : D, address: 10 to 00 after completing adjustments/repairs and press the PAUSE button of the adjustment remote commander. And set page: 0, address: 01, data: 00.

2. Emergency Memory Address

Page F	Address 10 to 1B
--------	------------------

Address	Contents
10	1st EMG code
12	Upper: MSW code when the mechanism starts shifting the 1st time Lower: MSW code when the 1st emergency occurs
13	Lower: Target MSW code of the 1st emergency occurs
14	2nd EMG code
16	Upper: MSW code when the mechanism starts shifting the 2nd time Lower: MSW code when the 2nd emergency occurs
17	Lower: Target MSW code of the 2nd emergency occurs
18	Last EMG code
1A	Upper: MSW code when the mechanism starts shifting the last time Lower: MSW code when the last emergency occurs
1B	Lower: Target MSW code of the last emergency occurs

When there are no emergency, data 00 will be written in the above addresses (10 to 1B). When the first emergency occurs, the data corresponding to the emergency will be written in the address (10 to 13) for this first emergency. In the same way, when the second emergency occurs, the data corresponding to the emergency will be written in the address (14 to 17) for this second emergency. The data corresponding to the emergency occurring the last will be written in the address (18 to 1B) for this last emergency. Therefore the data of addresses 18 to 1B are renewed each time an emergency occurs.

Note 1: Be sure to rewrite the data of addresses 10 to 1B to 00 after repairs/adjustments.

Note 2: When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

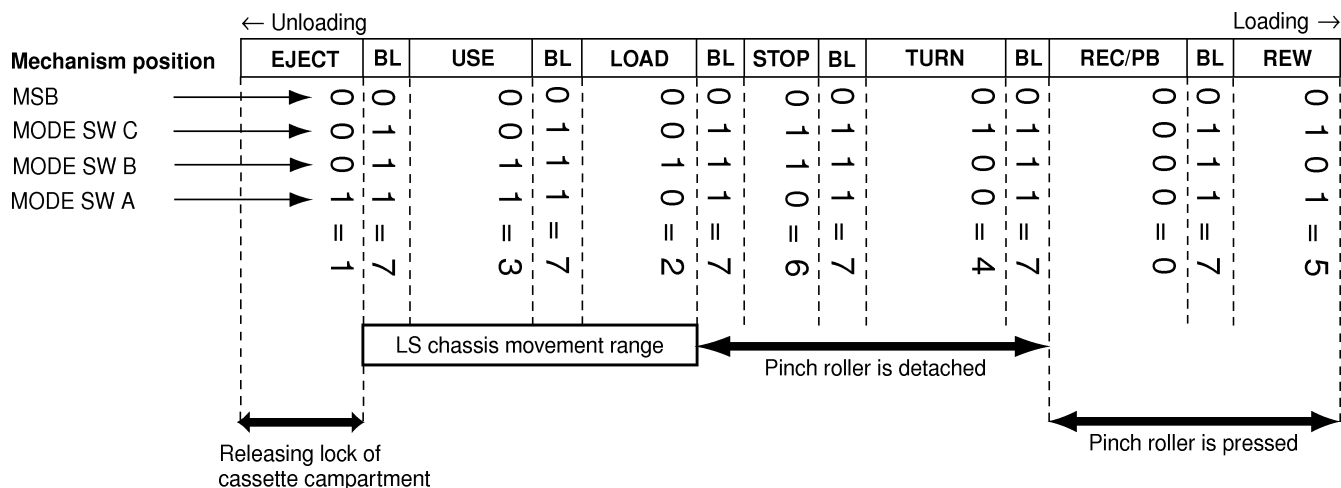
2-1. EMG code (Emergency code)

The codes shown in the following table which correspond to errors that occur are recorded in addresses 10, 14, and 18.

Code	Type of Emergency
00	No error
10	Loading motor time-out during load
11	Loading motor time-out during unload
20	T reel emergency (reel slack) during unloading
21	S reel emergency (reel slack) during unloading
22	T reel emergency
23	S reel emergency
30	FG emergency at the start up of the capstan
31	FG emergency during the normal rotation of the capstan
40	FG emergency at the start up of the drum
41	PG emergency at the start up of the drum
42	FG emergency during the normal rotation of the drum
43	PG emergency during the normal rotation of the drum
44	Phase emergency during the normal rotation of the drum

2-2. MSW codes

- The lower parts of the data of addresses 12, 16 and 1A represent the MSW codes (mode switch, mechanism position) when errors occurs.
- The upper parts of the data of addresses 12, 16 and 1A represent, when the mechanism position is to be moved, the MSW codes at the start of movement (when moving the loading motor).
- The lower parts of the data of addresses 13, 17 and 1B represent the MSW codes of the desired movement when the mechanism position is to be moved.

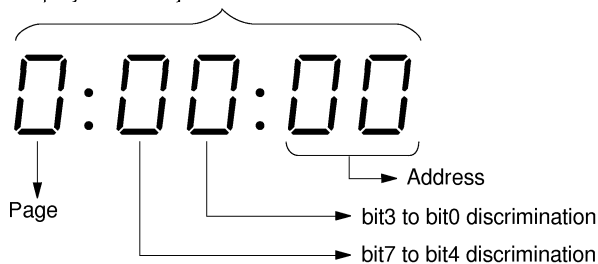


Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
RECP/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW are carried at this position. The mechanism will not move any further in the loading direction.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".

Display on the adjustment remote commander



(Example) If the remote commander display is "8E", bit value from bit 7 to bit 4 can be discriminated from the column ㉠, and those from bit 3 to bit 0 from column ㉡.

Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
㉠ 8	1	0	0	0
9	1	0	0	1
A (㉡)	1	0	1	0
B (㉢)	1	0	1	1
C (㉣)	1	1	0	0
D (㉤)	1	1	0	1
㉡ E (㉥)	1	1	1	0
F (㉦)	1	1	1	1

4. Input/output selection check

Page 2	Address 49
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
0			
1			
2			
3			
4	MIC jack (Note 1)	MIC jack is used	
5	AUDIO terminal (Note 1)	Monaural	Stereo
6	VIDEO terminal	VIDEO terminal is used	
7	S VIDEO terminal (Note 2)		S VIDEO terminal is used

Note 1: STEREO model only.

Note 2: Hi8 model only.

Using method:

- 1) Select page: 2, address: 49.
- 2) By discriminating the bit value of display data, the state of the input/output selection can be discriminated.

5. LED, LCD (display window) check

Page 2	Address 05	Bit5
--------	------------	------

Using method:

- 1) Select page: 2, address: 05, and set the bit value of Bit5 to "1".
- 2) Check that all LED are lit and all segments of LCD (display window) are lit.
- 3) Select page: 2, address: 05, and set the bit value of Bit5 to "0".

6. Record of Use check

Page 2	Address A2 to AA
--------	------------------

Bit	Function	Remarks
A2	Drum rotation	Hour (H) 1000th place digit and 100th place digit of counted time (decimal digit)
A3	counted time	Hour (L) 10th place digit and 1st place digit of counted time (decimal digit)
A4	(BCD code)	Minute
A5	User initial power	Year
A6	on date	Month
A7	(BCD code)	Day
A8	Final condensation	Year
A9	occurrence date	Month
AA	(BCD code)	Day

Using method:

- 1) The record of use data is displayed at page: 2, addresses: A2 to AA.

Note: This data will be erased when the coin lithium battery (CF-66/67 board BH001) is removed (reset).

7. Switch check (1)

Page 2	Address 43
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
0	VTR MODE SW (MA-374/375 board S302)	OFF	ON
1	CAM MODE SW (MA-374/375 board S303)	OFF	ON
2	START/STOP SW (SS-8500 block S002)	OFF	ON
3	EJECT SW (SS-8500 block S003)	OFF	ON
4	CC DOWN SW (Mechanism chassis)	OFF (UP)	ON (DOWN)
5	PHOTO FREEZE SW (FP-49 flexible)(Note)	OFF	ON
6			
7			

Note: CCD-TR918E/TRV87E model only.

Using method:

- 1) Select page: 2, address: 43.
- 2) By discriminating the bit value of display data, the state of the switches can be discriminated.

8. Switch check (2)

Page 2	Address 60 to 66
--------	------------------

Using method:

- 1) Select page: 2, address: 60 to 66.
- 2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0B	0C to 23	24 to 3E	3F to 5C	5D to 80	81 to A9	AA to D6	D7 to FF
60 (KEY AD0) (IC803 ㉓)	LASER LINK (FK-8500 block) (S008) Note2	STOP (FK-8500 block) (S001)	FF (FK-8500 block) (S003)	REC (FK-8500 block) (S005, 007) Note6	EDIT SEARCH(+) (FK-8500 block) (S009)	EDIT SEARCH(-) (FK-8500 block) (S010)		No key input
61 (KEY AD1) (IC803 ㉔)	PHOTO REC (FP-49 flexible) Note2	PAUSE (FK-8500 block) (S002)	REW (FK-8500 block) (S004)	PLAY (FK-8500 block) (S006)				No key input
62 (KEY AD2) (IC803 ㉕)	DIGITAL EFFECT (CF-66/67 board) (S001) Note2	PICTURE EFFECT (CF-66/67 board) (S016/004)	MENU (CF-66/67 board) (S006)	EXECUTE (CF-66/67 board) (S008/009)	TIME (CF-66/67 board) (S011/012)			No key input
64 (KEY AD4) (IC803 ㉗)			EXPOSURE (CF-66/67 board) (S007)	BACK LIGHT (CF-66/67 board) (S009/010)	FADER (CF-66/67 board) (S012/013)	FOCUS INFINITY (MR-8500 block) (S001)	FOCUS AUTO (MR-8500 block) (S001)	FOCUS MANUAL (MR-8500 block) (S001)
65 (KEY AD5) (IC803 ㉘)	DATE (CF-66/67 board) (S002)	COUNTER RESET (CF-66/67 board) (S005)	END SEARCH (CF-67 board) (S008) Note3	TITLE (CF-66/67 board) (S010/011)	DISPLAY (CF-67 board) (S014) Note3	SUPER NIGHT SHOT (FP-62 flexible) Note2	PANEL CLOSE	PANEL OPEN
66 (KEY AD6) (IC803 ㉙)	PROGRAM AE (CF-66/67 board) (S003 (Note4)) (S014 (Note5))	BRIGHT(+) (PD-117 board) (S5701)	BRIGHT(-) (PD-117 board) (S5702)	VOLUME(+) (PD-117 board) (S5703)	VOLUME(-) (PD-117 board) (S5704)	PANEL REVERSE (FP-152 flexible)		PANEL NORMAL (FP-152 flexible)

Note1: TR model / TRV model

TR model: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E

TRV model: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

Note2: CCD-TRV918E/TRV87E model only

Note3: TRV model only

Note4: Except CCD-TR317E/TR417E/TR427E/TR617E/TR717E model

Note5: CCD-TR317E/TR417E/TR427E/TR617E/TR717E model only

Note6: CCD-TRV87E: E, HK, AUS, CN, JE model only

9. Headphone jack check (TRV model only)

Page 2	Address 45
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Bit	Function	When bit value = 1	When bit value = 0
1	Headphone jack	Headphone jack is used	

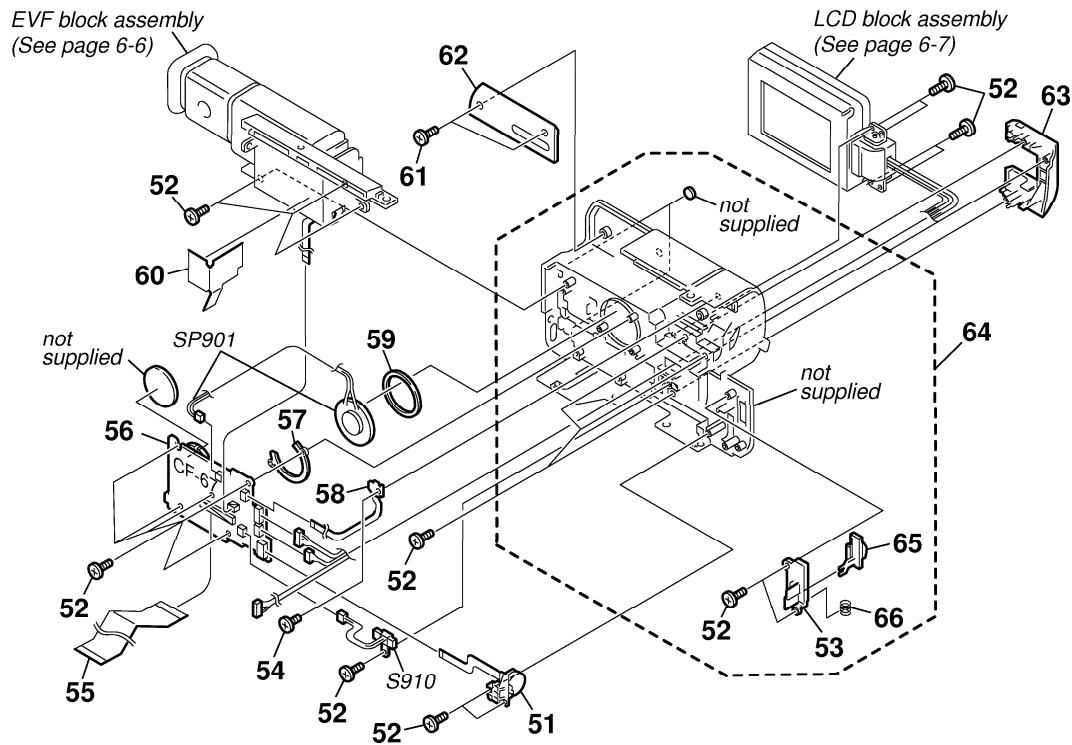
Using method:

- 1) Select page: 2, address: 45.
- 2) By discriminating the bit value of display data, the state of the headphone jack can be discriminated.

SECTION 6

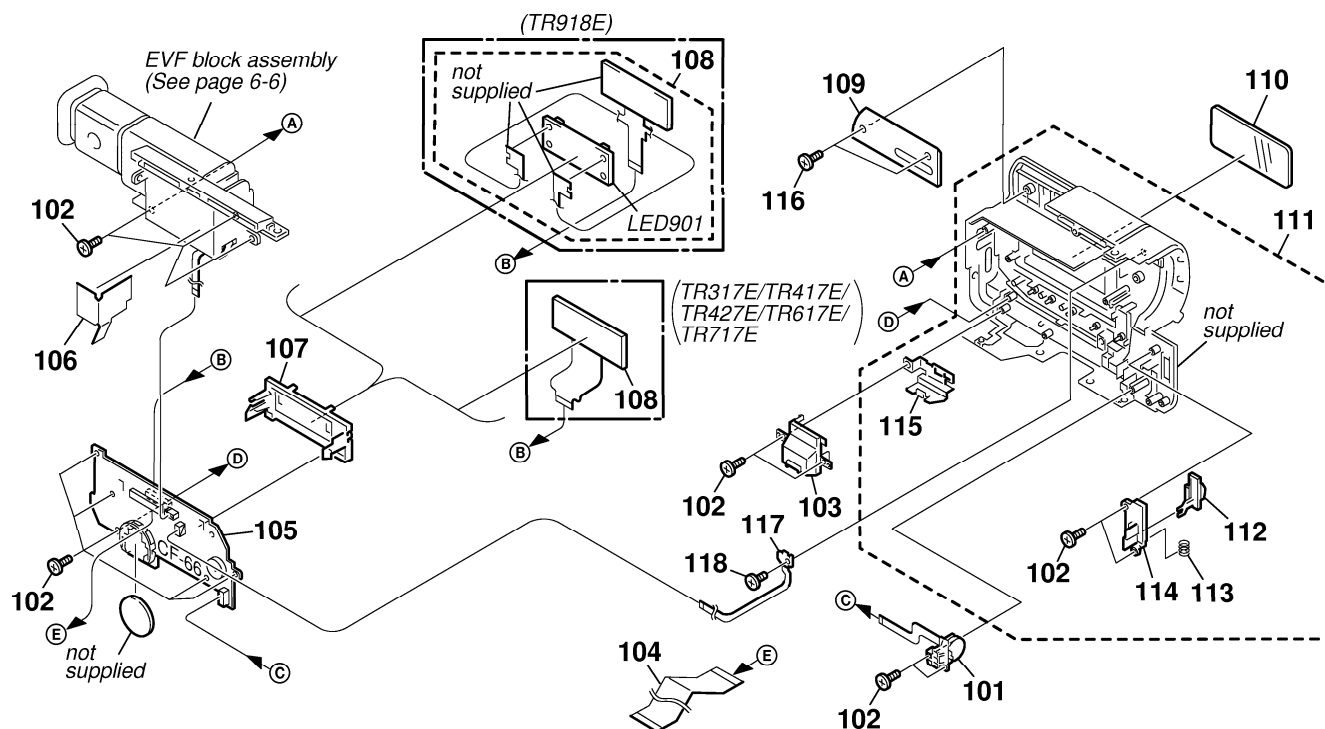
REPAIR PARTS LIST

6-1-2. CABINET (R) BLOCK ASSEMBLY (TRV MODEL) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	1-475-621-11	SWITCH BLOCK, CONTROL (MR-8500)		63	3-053-706-51	COVER (R) (93), HINGE (TRV47E)	
52	3-948-339-61	TAPPING		63	3-053-706-61	COVER (R) (93), HINGE (TRV37E:AEP1)	
53	3-053-690-01	RETAINER (93), MF		63	3-053-706-71	COVER (R) (93), HINGE	(TRV37E:AEP2,EE,NE,RU,UK)
54	3-713-791-01	SCREW (M1.7X4), TAPPING, P2 (TRV87E)		63	3-053-706-81	COVER (R) (93), HINGE (TRV87E:AEP2,UK)	
55	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)		63	3-053-706-91	COVER (R) (93), HINGE	(TRV48E:AEP2,UK/TRV57E:AEP2,UK/TRV67E:AEP2,UK)
56	A-7074-120-A	CF-67 (N-VHMMB0) BOARD, COMPLETE (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)		64	X-3950-096-1	CABINET (R) (98) ASSY (TRV87E)	
56	A-7074-126-A	CF-67 (N-VHXRIB0) BOARD, COMPLETE (TRV87E)		64	X-3950-097-1	CABINET (R) (98) ASSY (TRV57E/TRV67E)	
* 57	3-053-783-01	RETAINER (93), SPEAKER		64	X-3950-098-1	CABINET (R) (98) ASSY	(TRV37E/TRV47E/TRV48E)
58	1-672-668-21	FP-62 FLEXIBLE BOARD (TRV87E)		65	3-053-689-01	KNOB(93), MF	
59	3-060-141-01	SPACER (97), SP		66	3-568-315-01	SPRING, COMPRESSION	
* 60	3-059-290-01	GUIDE (97), HARNESS		S910	1-771-848-11	SWITCH, PUSH	
61	3-948-339-81	TAPPING		SP901	1-504-753-41	SPEAKER (2.8CM)	
62	3-053-684-01	GUIDE (B) (93), TILT					
63	3-053-706-31	COVER (R) (93), HINGE	(TRV87E:AEP1,EE,NE,RU,E,HK,AUS,CN,JE)				
63	3-053-706-41	COVER (R) (93), HINGE	(TRV48E:AEP1,EE,NE,RU/TRV57E:AEP1,EE,NE,RU,E,HK,AUS,CN,JE/ TRV67E:AEP1,EE,NE,RU,E,HK,AUS,CN,JE)				

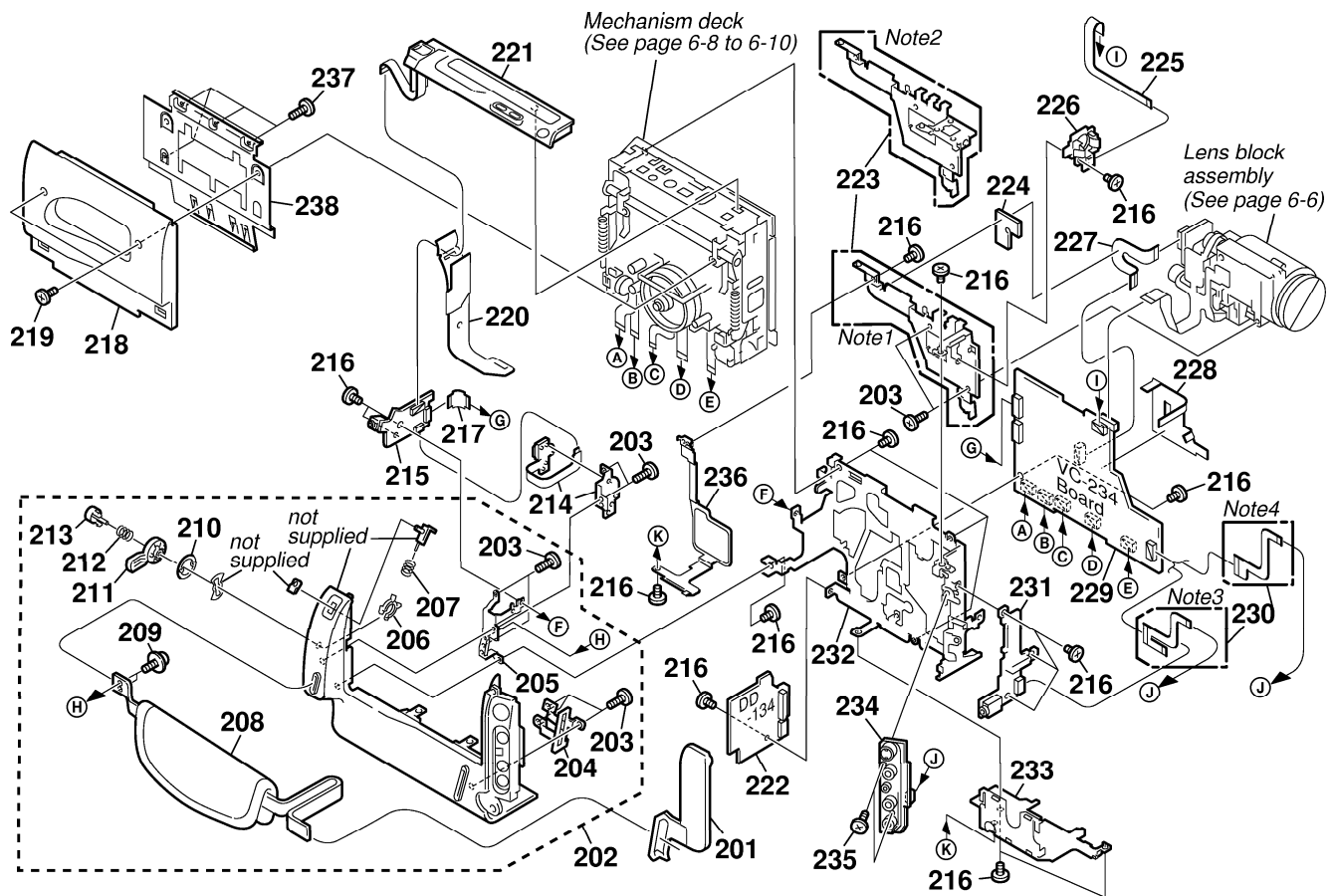
6-1-3. CABINET (R) BLOCK ASSEMBLY (TR MODEL) (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	1-475-621-11	SWITCH BLOCK, CONTROL (MR-8500)		111	X-3950-087-1	CABINET (R) (97) ASSY	
102	3-948-339-61	TAPPING				(TR427E:AEP1,EE,NE,RU)	
103	3-053-717-11	RETAINER, LITHIUM BATTERY		111	X-3950-088-1	CABINET (R) (97) ASSY (TR317E)	
104	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)		111	X-3950-089-1	CABINET (R) (97) ASSY	
105	A-7074-134-A	CF-66 (P-HXRIBO) BOARD, COMPLETE				(TR918E:AEP1,EE,NE,RU)	
			(TR918E)	111	X-3950-090-1	CABINET (R) (97) ASSY (TR918E:AEP2,UK)	
105	A-7074-152-A	CF-66 (N-LO) BOARD, COMPLETE (TR317E)		111	X-3950-091-1	CABINET (R) (97) ASSY	
105	A-7074-164-A	CF-66 (P-LO) BOARD, COMPLETE				(TR417E:AEP1,EE,NE,RU)	
			(TR417E/TR427E/TR617E/TR717E)	111	X-3950-092-1	CABINET (R) (97) ASSY (TR417E:AEP2,UK)	
* 106	3-059-290-01	GUIDE (97), HARNESS		111	X-3950-093-1	CABINET (R) (97) ASSY (TR427E:AEP2,UK)	
107	3-053-718-01	HOLDER (92), LCD (TR918E)		111	X-3950-094-1	CABINET (R) (97) ASSY	
107	3-058-238-01	HOLDER (97), LCD				(TR617E:AEP1,EE,NE,RU/TR717E:AEP1)	
			(TR317E/TR417E/TR427E/TR617E/TR717E)	111	X-3950-095-1	CABINET (R) (97) ASSY	
108	1-803-844-81	DISPLAY, PANEL, LIQUID CRYSTAL				(TR617E:AEP2/TR717E:AEP2,EE,NE,RU,UK)	
			(TR317E/TR417E/TR427E/TR617E/TR717E)	112	3-056-469-01	KNOB (93), MF	
108	A-7094-150-A	INDICATION LCD BLOCK ASSY (TR918E)		113	3-568-315-01	SPRING, COMPRESSION	
109	3-053-684-01	GUIDE (B) (93), TILT		114	3-053-690-01	RETAINER (93), MF	
110	3-058-219-21	WINDOW (97), LCD (TR918E)		115	3-053-713-01	LID (92), LITHIUM BATTERY	
110	3-058-219-31	WINDOW (97), LCD (TR417E)		116	3-948-339-81	TAPPING	
110	3-058-219-41	WINDOW (97), LCD (TR427E)		117	1-672-668-21	FP-62 FLEXIBLE BOARD (TR918E)	
110	3-058-219-51	WINDOW (97), LCD (TR717E)		118	3-713-791-01	SCREW (M1.7X4), TAPPING, P2 (TR918E)	
110	3-058-219-61	WINDOW (97), LCD (TR317E)		△ LED901	1-517-858-11	LIGHT, BACK (TR918E)	
110	3-058-219-71	WINDOW (97), LCD (TR617E)					

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

6-1-4. CABINET (L) BLOCK ASSEMBLY



Note1: TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E

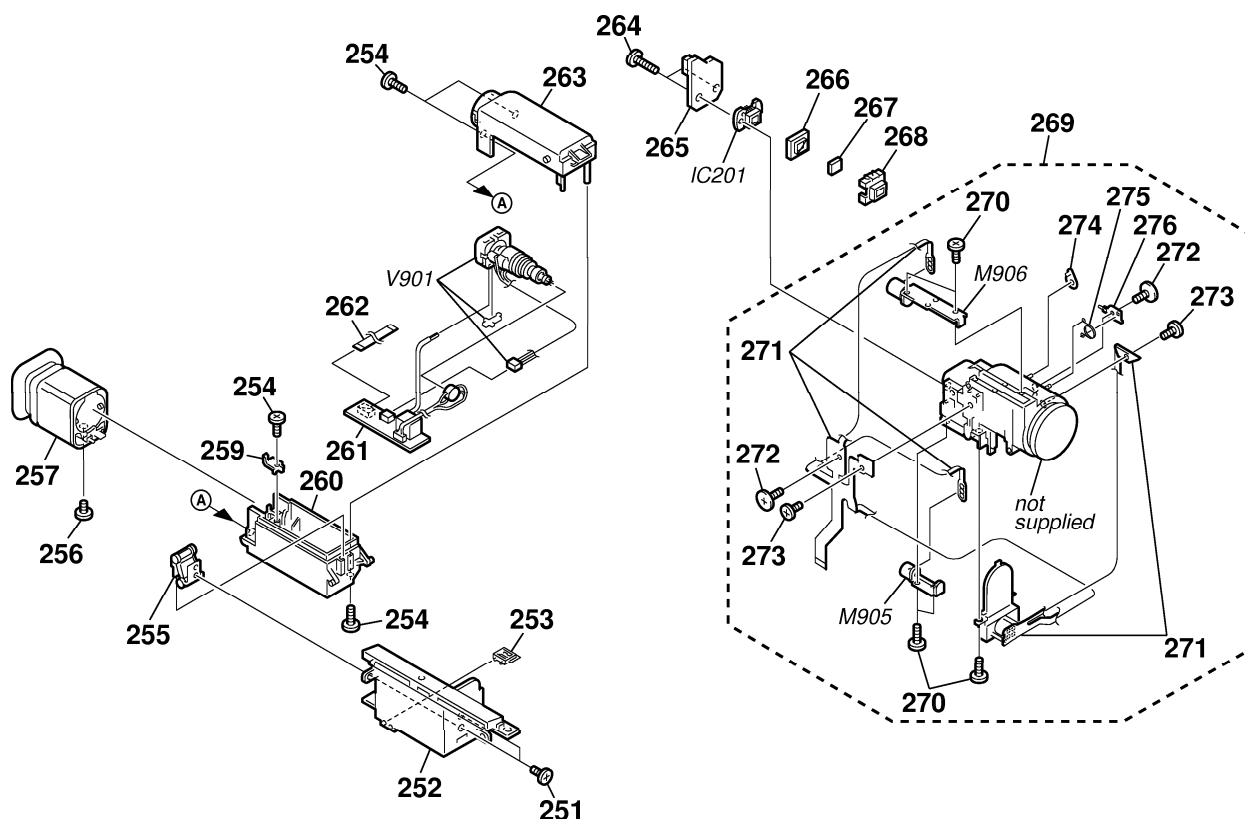
Note2: TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E

Note3: TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/
TRV57E/TRV67E/TRV87E

Note4: TR317E/TR417E/TR427E

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 201	3-975-522-11	COVER, JACK		229	A-7094-705-A	VC-234 (P-HMMBO) BOARD, COMPLETE	
202	X-3950-112-1	CABINET (L) ASSY (TRV87E)				(TR717E)	
202	X-3950-113-1	CABINET (L) ASSY (TRV67E)		229	A-7094-706-A	VC-234 (P-HXIRBO) BOARD, COMPLETE	
202	X-3950-114-1	CABINET (L) ASSY				(TR918E)	
		(TRV37E/TRV47E/TRV48E/TRV57E)		229	A-7094-708-A	VC-234 (P-VLO) BOARD, COMPLETE	
202	X-3950-115-1	CABINET (L) ASSY				(TRV37E/TRV47E/TRV48E)	
		(TR317E/TR417E/TR427E/TR617E)		229	A-7094-709-A	VC-234 (P-VHMMBO) BOARD, COMPLETE	
						(TRV67E)	
202	X-3950-116-1	CABINET (L) ASSY (TR918E)		229	A-7094-710-A	VC-234 (P-VHXRIBO) BOARD, COMPLETE	
202	X-3950-117-1	CABINET (L) ASSY (TR717E)				(TRV87E)	
203	3-948-339-61	TAPPING					
204	3-975-966-01	SHEET METAL (2), SS		229	A-7094-807-A	VC-234 (P-MMBO) BOARD, COMPLETE	
* 205	3-058-248-01	HOLDER (97), EL				(TR617E)	
				229	A-7094-808-A	VC-234 (P-VHMMBO) BOARD, COMPLETE	
206	3-949-192-01	HOLDER, STAND-BY KNOB				(TRV57E)	
207	3-979-642-01	SPRING, COMPRESSION		230	1-672-671-11	FP-44 FLEXIBLE BOARD	
208	3-052-815-01	BELT (ES), GRIP				(TR617E/TR717E/TR918E/TRV37E/TRV47E/	
209	3-679-362-11	SCREW				TRV48E/TRV57E/TRV67E/TRV87E)	
210	3-970-854-01	SPRING, STAND-BY		230	1-676-297-11	FP-149 FLEXIBLE BOARD	
						(TR317E/TR417E/TR427E)	
211	3-969-081-01	KNOB, STAND-BY		231	A-7074-116-A	SE-101 (N-VLO) BOARD, COMPLETE (TRV47E)	
212	3-302-492-00	SPRING, COMPRESSION					
213	3-054-010-01	BUTTON, SS		231	A-7074-123-A	SE-101 (N-VHMMBO) BOARD, COMPLETE	
214	1-418-758-21	SWITCH BLOCK, CONTROL (SS-9700)				(TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE)	
215	A-7074-149-A	EJ-30 (VHXRIBO) BOARD, COMPLETE		231	A-7074-129-A	SE-101 (N-VHXRIBO) BOARD, COMPLETE	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)				(TRV87E:E,HK,AUS,CN,JE)	
215	A-7074-162-A	EJ-29 (CO) BOARD, COMPLETE		231	A-7074-137-A	SE-100 (HXRIBO) BOARD, COMPLETE	
		(TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)				(TR617E/TR717E/TR918E)	
216	3-713-786-21	SCREW (M2X3)		231	A-7074-140-A	SE-101 (P-VLO) BOARD, COMPLETE	
217	1-676-298-11	FP-150 FLEXIBLE BOARD				(TRV37E/TRV48E)	
218	X-3948-329-1	LID ASSY, CASSETTE		231	A-7074-144-A	SE-101 (P-VHMMBO) BOARD, COMPLETE	
		(TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/TRV48E/TRV57E)				(TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK)	
218	X-3948-331-1	LIDASSY, CASSETTE		231	A-7074-147-A	SE-101 (P-VHXRIBO) BOARD, COMPLETE	
		(TR717E/TR918E/TRV67E/TRV87E)				(TRV87E:AEP,EE,NE,RU,UK)	
219	3-968-729-81	SCREW (M2), LOCK ACE, P2		232	3-053-743-01	FRAME (A), MD	
* 220	3-058-247-01	PROTECTOR (97), LS FLEXIBLE		233	3-987-675-01	FRAME (B), MD	
221	1-418-760-11	SWITCH BLOCK, CONTROL (FK-8500)				(TR317E/TRV47E/TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE/	
		(TRV87E:E,HK,AUS,CN,JE)				TRV87E:E,HK,AUS,CN,JE)	
221	1-418-760-21	SWITCH BLOCK, CONTROL (FK-8500)		233	3-987-675-11	FRAME (B), MD	
		(TR317E/TR417E/TR427E/TR617E/TR717E/				(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/	
		TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)				TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/	
221	1-418-760-41	SWITCH BLOCK, CONTROL (FK-8500)				TRV87E:AEP,EE,NE,RU,UK)	
		(TR918E/TRV87E:AEP,EE,NE,RU,UK)		234	A-7074-115-A	PJ-100 (N-VLO) BOARD, COMPLETE	
						(TRV47E/TRV57E:E,HK,AUS,CN,JE)	
222	A-7074-113-A	DD-134 (VO) BOARD, COMPLETE		234	A-7074-122-A	PJ-100 (N-VHMMBO) BOARD, COMPLETE	
		(TRV37E/TRV47E/TRV48E)				(TRV67E:E,HK,AUS,CN,JE)	
222	A-7074-125-A	DD-134 (VHXRIBO) BOARD, COMPLETE		234	A-7074-128-A	PJ-100 (N-VHXRIBO) BOARD, COMPLETE	
		(TRV57E/TRV67E/TRV87E)				(TRV87E:E,HK,AUS,CN,JE)	
222	A-7074-133-A	DD-134 (HXRIBO) BOARD, COMPLETE		234	A-7074-136-A	PJ-99 (HXRIBO) BOARD, COMPLETE (TR918E)	
		(TR918E)		234	A-7074-139-A	PJ-100 (P-VLO) BOARD, COMPLETE	
222	A-7074-151-A	DD-134 (LO) BOARD, COMPLETE				(TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK)	
		(TR317E/TR417E/TR427E)		234	A-7074-143-A	PJ-100 (P-VHMMBO) BOARD, COMPLETE	
222	A-7074-166-A	DD-134 (HMMBO) BOARD, COMPLETE				(TRV67E:AEP,EE,NE,RU,UK)	
		(TR617E/TR717E)		234	A-7074-146-A	PJ-100 (P-VHXRIBO) BOARD, COMPLETE	
						(TRV87E:AEP,EE,NE,RU,UK)	
223	3-053-741-01	FRAME (S), LENS		234	A-7074-158-A	PJ-99 (CO) BOARD, COMPLETE	
		(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)				(TR317E/TR417E/TR427E/TR617E)	
* 223	3-053-742-01	FRAME (L), LENS		234	A-7074-168-A	PJ-99 (HMMBO) BOARD, COMPLETE (TR717E)	
		(TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)		235	3-968-729-91	SCREW (M2), LOCK ACE, P2	
* 224	3-058-969-01	CUSHION (97), CD FLEXIBLE		236	X-3950-104-1	SHIELD ASSY (97), IM	
225	1-672-673-11	FP-46 FLEXIBLE BOARD				(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/	
		(TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)				TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/	
226	A-7074-130-A	VL-29 (VHXRIBO) BOARD, COMPLETE				TRV87E:AEP,EE,NE,RU,UK)	
		(TRV57E/TRV67E/TRV87E)					
226	A-7074-169-A	VL-28 (BO) BOARD, COMPLETE		237	3-713-791-01	SCREW (M1.7X4), TAPPING, P2	
		(TR617E/TR717E/TR918E)				(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/	
227	1-676-296-11	FP-147 FLEXIBLE BOARD				TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/	
* 228	3-058-250-01	SHEET (97), IM GUARD				TRV87E:AEP,EE,NE,RU,UK)	
229	A-7094-704-A	VC-234 (P-LO) BOARD, COMPLETE		* 238	3-058-253-01	PLATE (97), CASSETTE SHIELD	
		(TR317E/TR417E/TR427E)				(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/	
						TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/	
						TRV87E:AEP,EE,NE,RU,UK)	

6-1-5. EVF BLOCK ASSEMBLY AND LENS BLOCK ASSEMBLY

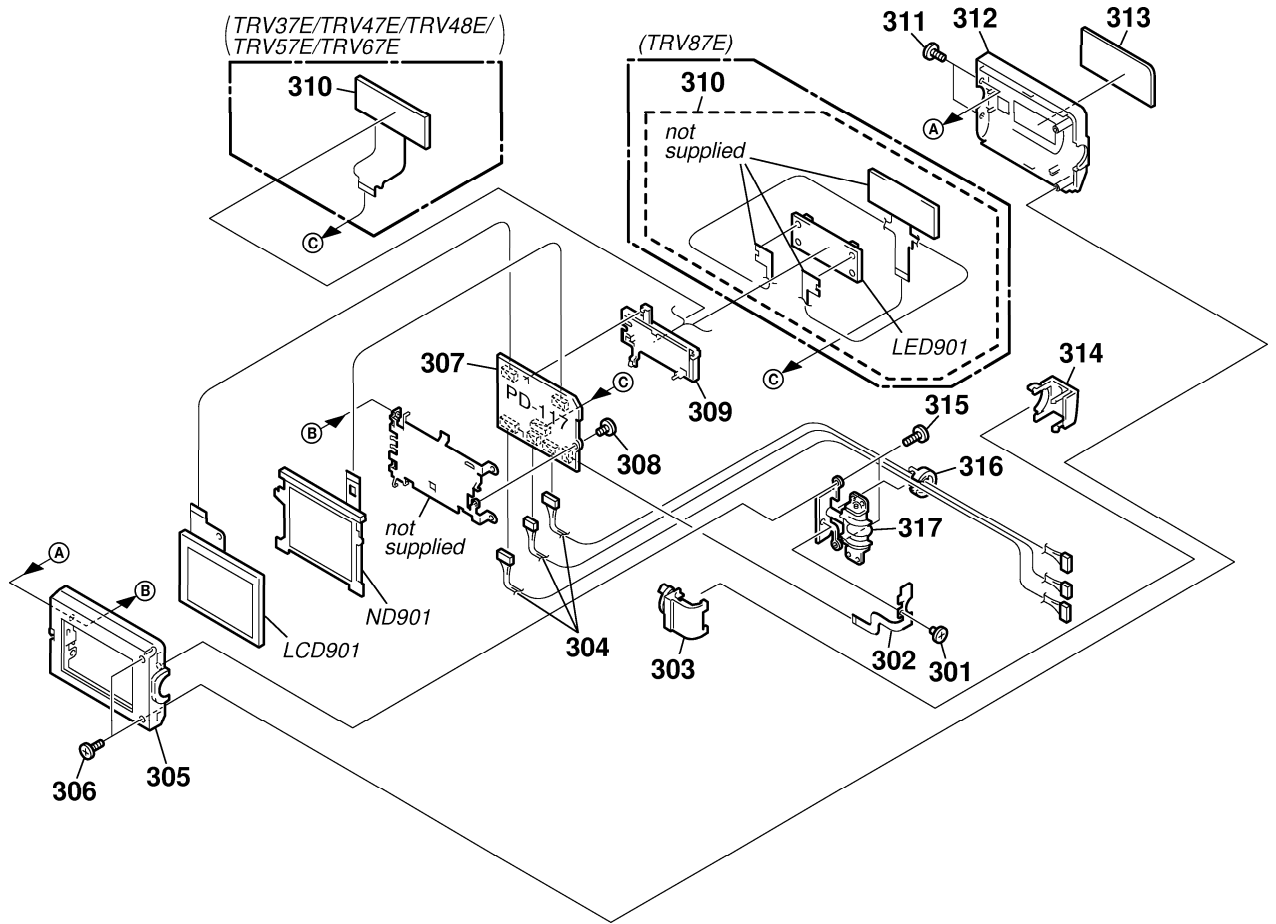


Be sure to read "Precautions upon replacing CCD imager" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
251	3-713-786-21	SCREW (M2X3)		266	3-968-054-11	RUBBER (FM), SHIELD (TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E/TRV87E)	
252	3-058-245-01	BASE (B) (97), VF		267	1-758-084-21	FILTER BLOCK, OPTICAL (TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E/TRV87E)	
253	3-053-685-01	LOCK (93), TILT		267	1-758-133-21	FILTER BLOCK, OPTICAL (TR617E/TR717E/TRV57E/TRV67E)	
254	3-948-339-81	TAPPING		268	3-978-981-11	ADAPTOR (FK), CCD FITTING	
255	X-3949-327-1	ARM(B) ASSY, CRANK		269	8-848-729-01	DEVICE, LENS LSV-630A	
256	3-975-898-01	SCREW (T), F LOCK		270	3-713-791-41	SCREW, TAPPING (M1.7X5), P2	
257	X-3949-329-1	FINDER (S) ASSY		271	X-3949-355-2	IRIS FLEXIBLE ASSY 630	
259	3-053-681-01	TALLY, EVF		272	3-056-022-01	TAPPING (B1.7X3.5), HEAD	
260	3-053-679-02	CABINET (LOWER B) (93), EVF (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)		273	3-713-791-51	SCREW, TAPPING (M1.7X3.5), P2	
260	3-053-679-21	CABINET (LOWER B) (93), EVF (TR918E/TRV87E)		274	3-053-799-01	GEAR, IR	
261	A-7073-855-A	VF-129 (P) BOARD, COMPLETE		275	3-053-800-01	SPRING, RETAIN	
262	1-792-454-11	CABLE, FLEXIBLE FLAT (FFC-289)		276	3-053-827-01	LEVER, IR	
263	X-3949-328-2	CABINET (UPPER B) (93) ASSY (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)		IC201	A-7031-043-A	CCD BLOCK ASSY (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)	
263	X-3950-119-1	CABINET (UPPER B) (93) ASSY (TR918E/TRV87E)		IC201	A-7031-046-A	CCD BLOCK ASSY (TR918E)	
264	3-318-203-11	SCREW (B1.7X6), TAPPING		IC201	A-7031-049-A	CCD BLOCK ASSY (TR617E/TR717E/TRV57E/TRV67E)	
265	A-7074-148-A	CD-240 (VHXRI80) BOARD, COMPLETE (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		IC201	A-7031-060-A	CCD BLOCK ASSY (TRV87E)	
265	A-7074-161-A	CD-239 (CO) BOARD, COMPLETE (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)		M905	1-763-262-11	MOTOR, STEPPING F630	
266	3-953-817-01	RUBBER (F), SEAL (TR617E/TR717E/TRV57E/TRV67E)		M906	1-763-046-21	MOTOR, STEPPING Z600	
				△ V901	1-452-673-61	CRT ASSY (M01KXX90WB)	

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

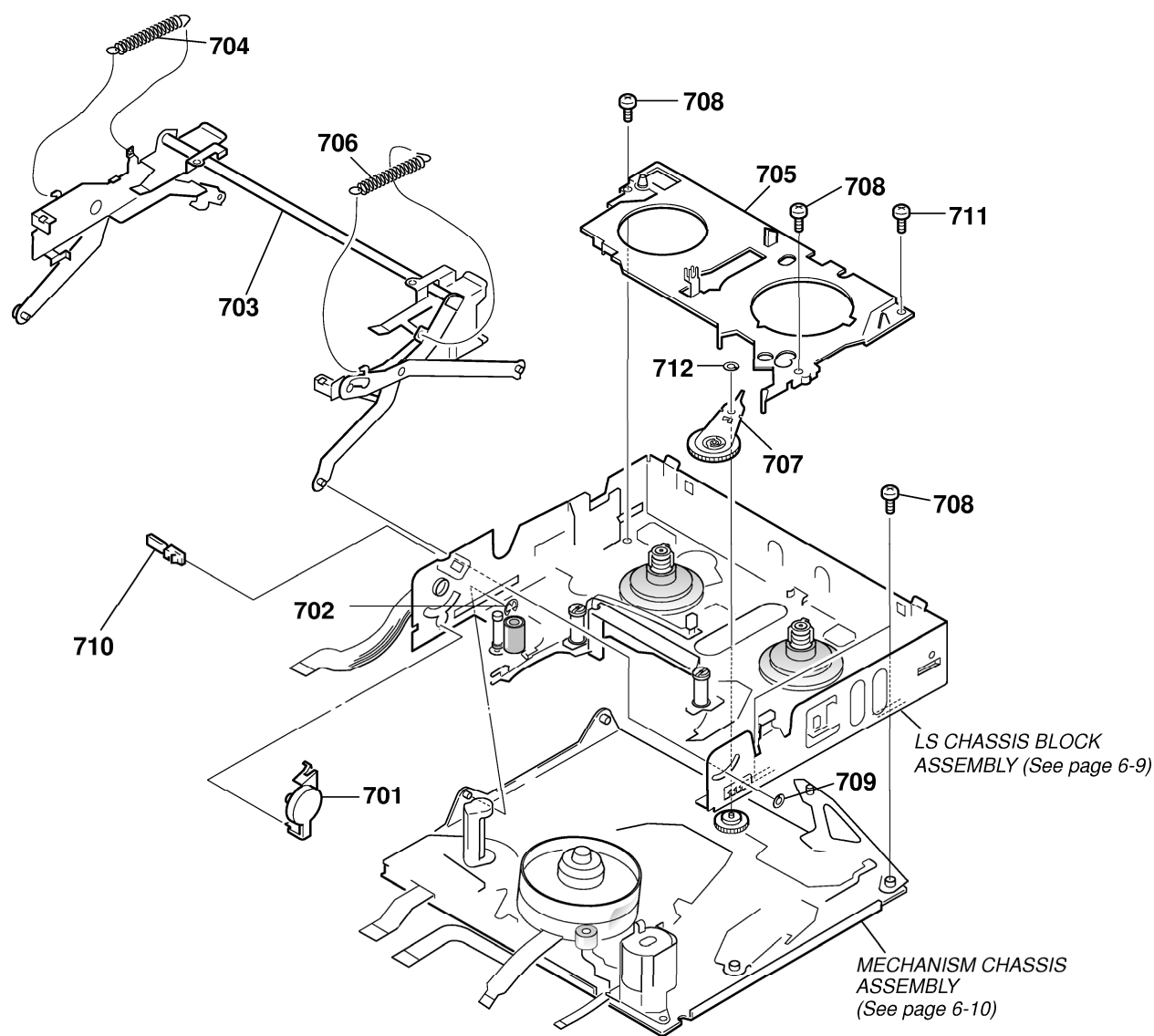
6-1-6. LCD BLOCK ASSEMBLY (TRV MODEL) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
301	4-981-286-01	SCREW (M1.7X2) (IB LOCK)		313	3-058-220-51	WINDOW (98), LCD (TRV37E)	
302	1-676-300-11	FP-152 FLEXIBLE BOARD		313	3-058-220-61	WINDOW (98), LCD (TRV87E)	
303	3-058-244-01	COVER (M) (98), HINGE		313	3-058-220-71	WINDOW (98), LCD (TRV67E)	
304	1-960-161-11	HARNESS (DP-78)		313	3-058-220-81	WINDOW (98), LCD (TRV48E)	
305	X-3949-335-1	CABINET (M) (93) ASSY, P		313	3-058-220-91	WINDOW (98), LCD (TRV47E)	
306	3-948-339-81	TAPPING		313	3-059-033-21	WINDOW (98), LCD (TRV57E)	
307	A-7074-141-A	PD-117 (P-VLO) BOARD, COMPLETE		314	3-053-707-01	COVER (C) (93), HINGE (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
308	3-713-786-21	SCREW (M2X3)		314	3-053-707-21	COVER (C) (93), HINGE (TRV87E)	
309	3-053-702-01	HOLDER (93), LCD (TRV87E)		315	3-948-339-31	SCREW, TAPPING	
309	3-058-243-01	HOLDER (98), LCD (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)		316	3-987-623-01	CLAMP, HARNESS	
310	1-803-844-81	DISPLAY PANEL, LIQUID CRYSTAL (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)		317	X-3950-108-1	HINGE (98) ASSY	
310	A-7094-150-A	INDICATION LCD BLOCK ASSY (TRV87E)		LCD901	1-803-859-21	INDICATOR MODULE, LIQUID CRYSTAL (SERVICE)	
311	3-968-729-91	SCREW (M2), LOCK ACE, P2		△ LED901	1-517-858-11	LIGHT, BACK (TRV87E)	
312	3-058-210-01	CABINET (C) (98), P (TRV87E)		△ ND901	1-517-752-31	TUBE, FLUORESCENT, COLD CATHODE	
312	3-058-210-11	CABINET (C) (98), P (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)					

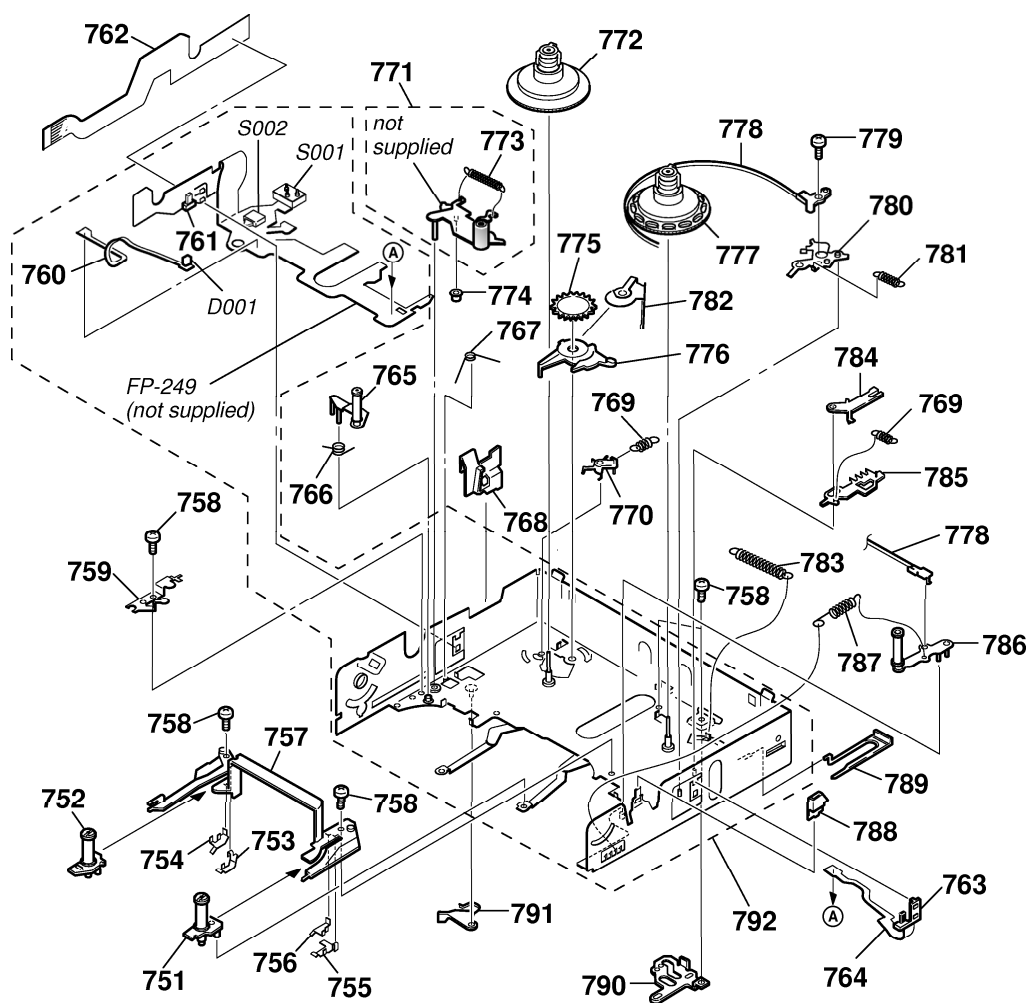
Note : The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety.
Replace only with part number specified.

6-1-7. CASSETTE COMPARTMENT ASSEMBLY



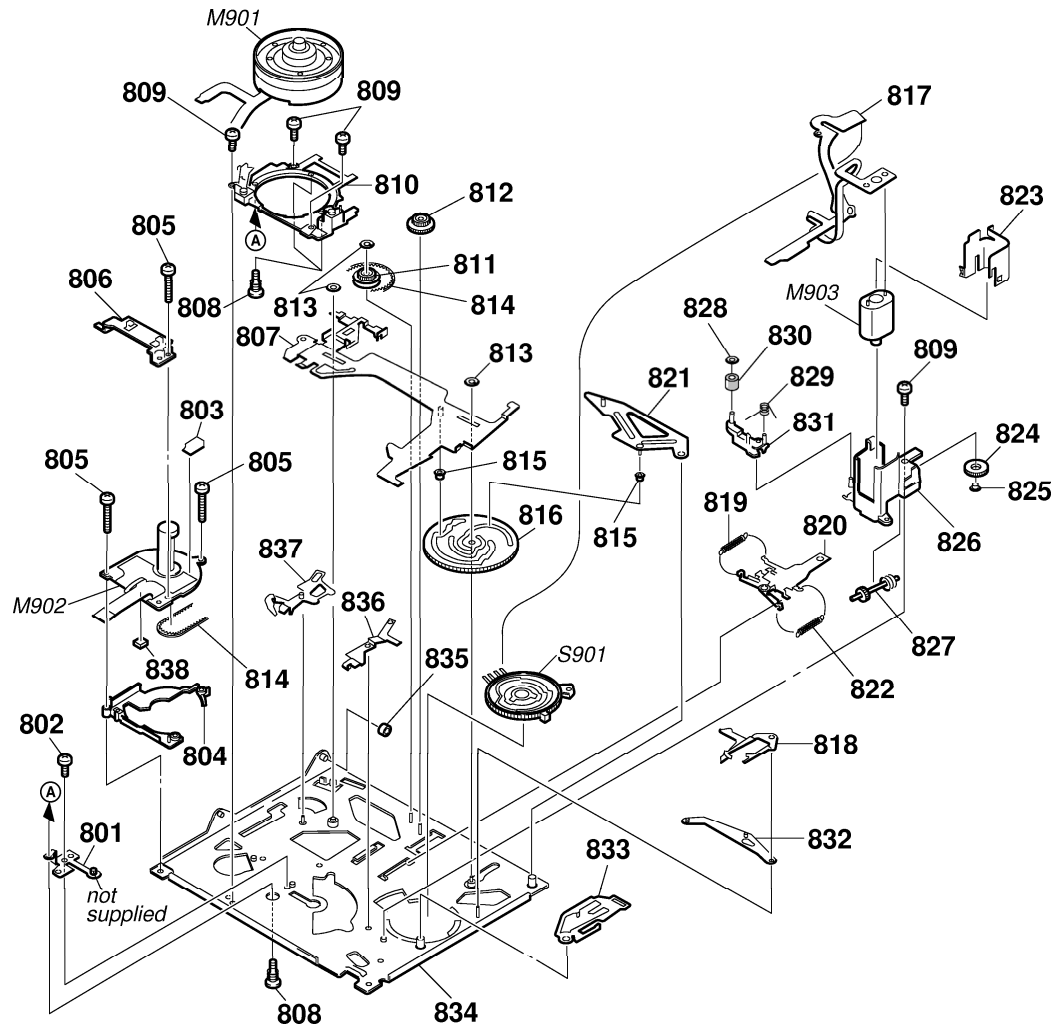
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
701	A-7040-421-A	DAMPER ASSY		707	X-3945-399-1	GEAR ASSY, GOOSENECK	
702	7-624-102-04	STOP RING 1.5, TYPE -E		708	3-947-503-01	SCREW (M1.4X2.5)	
703	X-3949-153-2	CASSETTE COMPARTMENT ASSY		709	3-979-686-01	WASHER, STOPPER	
704	3-965-587-03	SPRING (POWER TENSION), TENSION		710	3-971-076-01	FASTENER, D	
705	3-989-479-01	RETAINER (2), GOOSENECK		711	3-976-055-01	SCREW (M1.4X1)	
706	3-973-268-01	SPRING (POWER TENSION), TENSION		712	3-331-007-21	WASHER	

6-1-8. LS CHASSIS BLOCK ASSEMBLY



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE		774	3-965-579-01	ROLLER, PINCH PRESS	
752	A-7040-418-B	BASE (T) BLOCK ASSY, GUIDE		775	3-965-563-01	GEAR, T SOFT	
753	3-965-559-01	STOPPER (T)		776	3-965-565-01	CLAW, T SOFT	
754	3-965-557-01	STOPPER (T), GB		777	X-3945-397-1	DECK ASSY, REEL, S	
755	3-965-558-01	STOPPER (S)		778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
756	3-965-556-01	STOPPER (S), GB		779	3-945-756-01	SCREW (M1.4X3)	
757	3-965-553-01	RAIL, GUIDE		780	3-965-583-01	ARM, RVS	
758	3-947-503-01	SCREW (M1.4X2.5)		781	3-965-580-01	SPRING (ARM, RVS), TENSION	
759	3-965-573-01	RETAINER, TG4		782	3-966-384-01	SPRING, T SOFT	
760	1-658-213-11	FP-355 FLEXIBLE BOARD		783	3-965-578-01	SPRING, TENSION COIL	
761	3-965-552-01	HOLDER, SENSOR (T)		784	3-965-560-01	RATCHET, S	
762	1-657-786-13	FP-221 FLEXIBLE BOARD		785	3-965-561-01	PLATE, RELEASE, S RATCHET	
763	3-965-551-01	HOLDER, SENSOR (S)		786	X-3945-395-1	ARM ASSY, TG1	
764	1-658-214-11	FP-356 FLEXIBLE BOARD		787	3-965-576-01	SPRING (TG1), TENSION	
765	A-7040-417-A	ARM BLOCK ASSY, TG4		788	3-965-567-01	LID OPEN	
766	3-965-574-01	SPRING (RETURN, TG4), TORSION		789	3-965-566-01	COVER, LS GUIDE	
767	3-965-575-01	SPRING (PINCH), TORSION		* 790	3-965-577-01	PLATE, CAM, LS	
768	3-965-568-11	GUIDE, LOCK		791	3-965-569-01	ARM, EJ	
769	3-965-562-01	SPRING (RATCHET), TENSION		792	A-7040-427-B	CHASSIS (S1) ASSY, LS	
770	3-965-581-03	RATCHET, T		D001	8-719-988-42	DIODE GL453	
771	X-3949-380-1	ARM ASSY (E), PINCH		S001	1-682-614-11	SWITCH, PUSH (3KEY) (Hi8 MP,ME/MP,REC PROOF)	
772	X-3945-398-2	DECK ASSY, REEL, T		S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	
773	3-965-648-01	SPRING (PINCH), TENSION					

6-1-9. MECHANISM CHASSIS ASSEMBLY



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
801	3-974-320-02	GROUND (IM), SHAFT		822	3-965-535-01	SPRING (LIMITER ARM S), COIL	
802	3-965-550-02	SCREW (M1.7X1.6)		823	3-965-542-01	SHIELD, MOTOR	
803	1-657-785-11	FP-248 FLEXIBLE BOARD		824	3-965-539-01	GEAR (A)	
804	3-054-404-01	SPACER, CAPSTAN		825	3-965-538-01	SLEEVE, MOTOR HOLDER	
805	3-965-549-01	SCREW (M1.4X6.5)		826	3-965-540-01	HOLDER, MOTOR	
806	3-966-349-01	HOLDER, FLEXIBLE		827	3-965-541-01	SHAFT, WORM	
807	3-971-644-02	SLIDER (2), M		828	3-321-393-01	WASHER, STOPPER	
808	X-3947-895-1	SCREW ASSY, DRUM ATTACHED		829	3-965-724-01	SPRING (RETURN, HC), TORSION	
809	3-947-503-01	SCREW (M1.4X2.5)		830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
810	A-7040-494-A	BASE BLOCK ASSY, DRUM		831	X-3945-407-1	ARM ASSY, HC ROLLER	
811	3-965-527-01	GEAR, CHANGE		832	3-965-531-01	ARM, GL	
812	3-965-544-01	GEAR, RELAY		833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
813	3-331-007-21	WASHER		834	X-3949-589-3	CHASSIS ASSY, MECHANICAL	
814	3-965-546-01	BELT, TIMING		835	3-965-526-02	ROLLER, LS GUIDE	
815	3-965-533-01	ROLLER, LS		836	3-965-547-01	ARM, HC DRIVING	
816	3-965-528-01	GEAR, CAM		837	3-965-534-01	PLATE, PRESS, PINCH	
817	1-657-784-11	FP-220 FLEXIBLE BOARD		838	3-987-953-01	SPACER, RUBBER	
818	3-965-529-01	PLATE, REGULATOR, TENSION		M901	A-7048-899-A	DRUM BLOCK ASSY (DGH-0F1A-R) (PAL)	
819	3-965-536-01	SPRING (LIMITER ARM T), COIL		M902	8-835-531-32	MOTOR, DC SCE-0601A/C-NP (CAPSTAN)	
820	X-3945-388-1	SLIDER ASSY, GL		M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
821	3-965-532-21	ARM, LS		S901	1-762-436-15	SWITCH (ENCODER), ROTARY	

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
uF: μ F

- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μ H
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...

When indicating parts by reference number, please include the board name.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

- Abbreviation
AUS : Australian model
HK : Hong Kong model
CN : Chinese model
EE : East European model
NE : North European model
RU : Russian model
JE : Tourist model

Ref. No.	Part No.	Description	Remarks
	A-7074-161-A	CD-239 (CO) BOARD, COMPLETE (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E) ***** (Ref.No.;2000Series) (IC201 is not included in this complete board.)	

< CAPACITOR >

C201	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V

< CONNECTOR >

CN201	1-573-354-11	CONNECTOR, FFC/FPC 14P			
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< COIL >

L201	1-414-757-11	INDUCTOR	100uH		
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< TRANSISTOR >

Q201	8-729-117-73	TRANSISTOR	2SC4178-F13F14-T1		
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< RESISTOR >

R201	1-216-797-11	METAL CHIP	10	5%	1/16W
R202	1-216-809-11	METAL CHIP	100	5%	1/16W
R203	1-216-833-91	RES-CHIP	10K	5%	1/16W

	A-7074-148-A	CD-240 (VHXRIBO) BOARD, COMPLETE (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E) ***** (Ref.No.;2000Series) (IC201 is not included in this complete board.)	
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< CAPACITOR >

C201	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V

< CONNECTOR >

CN201	1-573-354-11	CONNECTOR, FFC/FPC 14P			
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< COIL >

L201	1-414-757-11	INDUCTOR	100uH		
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Be sure to read "Precautions upon replacing CCD imager" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description	Remarks
		< TRANSISTOR >	

Q201	8-729-117-73	TRANSISTOR	2SC4178-F13F14-T1
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< RESISTOR >

R201	1-216-797-11	METAL CHIP	10	5%	1/16W
R202	1-216-809-11	METAL CHIP	100	5%	1/16W
R203	1-216-833-91	RES-CHIP	10K	5%	1/16W

	A-7074-134-A	CF-66 (P-HXRIBO) BOARD, COMPLETE (TR918E) *****	
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	A-7074-152-A	CF-66 (N-LO) BOARD, COMPLETE (TR317E) *****	
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	A-7074-164-A	CF-66 (P-LO) BOARD, COMPLETE (TR417E/TR427E/TR617E/TR717E) ***** (Ref.No.;3000Series)	
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< HOLDER >

BH001	1-550-104-11	HOLDER, BATTERY			
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< BUZZER >

BZ001	1-529-107-11	BUZZER, PIEZOELECTRIC (TR417E/TR427E/TR617E/TR717E/TR918E)			
BZ002	1-529-104-21	BUZZER, PIEZOELECTRIC (TR317E)			

< CAPACITOR >

C003	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C004	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V

< CONNECTOR >

CN001	1-785-760-11	CONNECTOR, FFC/FPC (ZIF) 45P			
CN002	1-774-765-11	CONNECTOR, FFC/FPC 8P			
CN007	1-778-283-11	CONNECTOR, FFC/FPC 4P			
CN008	1-779-328-21	CONNECTOR, FFC/FPC 8P (TR918E)			
CN010	1-691-364-21	CONNECTOR, FFC/FPC (ZIF) 26P			

< DIODE >

D002	8-719-421-27	DIODE	MA728-(K8).S0		
D005	8-719-073-03	DIODE	MA8082-(K8).S0		
D006	8-719-073-03	DIODE	MA8082-(K8).S0		
D008	8-719-073-01	DIODE	MA111-TX		

< IC >

IC001	8-759-573-02	IC	BU9735K-E2		
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Ref. No.	Part No.	Description	Remarks
< COIL >			
L004	1-469-527-91	INDUCTOR 47uH	
L005	1-469-527-91	INDUCTOR 47uH	
< TRANSISTOR >			
Q001	8-729-402-42	TRANSISTOR UN5213-TX	
Q002	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	(TR918E)
Q003	8-729-230-72	TRANSISTOR 2SA1362-YG-EL	(TR918E)
< RESISTOR >			
R002	1-216-849-11	METAL CHIP 220K 5%	1/16W (TR918E)
R003	1-216-833-91	RES-CHIP 10K 5%	1/16W (TR918E)
R004	1-216-853-11	METAL CHIP 470K 5%	1/16W (TR918E)
R005	1-216-833-91	RES-CHIP 10K 5%	1/16W
R006	1-216-833-91	RES-CHIP 10K 5%	1/16W
R007	1-216-833-91	RES-CHIP 10K 5%	1/16W
R008	1-216-833-91	RES-CHIP 10K 5%	1/16W
R009	1-216-837-11	METAL CHIP 22K 5%	1/16W (TR918E)
R010	1-216-829-11	METAL CHIP 4.7K 5%	1/16W (TR918E)
R011	1-216-855-11	METAL CHIP 680K 5%	1/16W
R012	1-216-822-11	METAL CHIP 1.2K 5%	1/16W
R013	1-216-822-11	METAL CHIP 1.2K 5%	1/16W
R014	1-216-826-11	METAL CHIP 2.7K 5%	1/16W
R015	1-216-823-11	METAL CHIP 1.5K 5%	1/16W
R016	1-216-823-11	METAL CHIP 1.5K 5%	1/16W
R017	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R018	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R019	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R020	1-216-828-11	METAL CHIP 3.9K 5%	1/16W
R021	1-216-828-11	METAL CHIP 3.9K 5%	1/16W
R023	1-216-834-11	METAL CHIP 12K 5%	1/16W
R025	1-216-832-11	METAL CHIP 8.2K 5%	1/16W
R032	1-216-838-11	METAL CHIP 27K 5%	1/16W
R040	1-216-809-11	METAL CHIP 100 5%	1/16W (TR918E)
R043	1-216-809-11	METAL CHIP 100 5%	1/16W (TR918E)
R048	1-216-864-11	METAL CHIP 0 5%	1/16W
< SWITCH >			
S001	1-771-138-61	SWITCH, KEY BOARD (DIGITAL EFFECT)	(TR918E)
S002	1-771-138-61	SWITCH, KEY BOARD (DATE)	
S003	1-771-138-61	SWITCH, KEY BOARD (PROGRAM AE)	(TR918E)
S005	1-771-138-61	SWITCH, KEY BOARD (COUNTER RESET)	
S006	1-771-029-21	SWITCH, TACTILE (MENU)	
S007	1-771-029-21	SWITCH, TACTILE (EXPOSURE)	
S008	1-771-025-41	SWITCH, ROTARY (ENCODER)	(SEL/PUSH EXEC)
S009	1-771-138-61	SWITCH, KEY BOARD (BACK LIGHT)	
S010	1-771-138-61	SWITCH, KEY BOARD (TITLE)	
S011	1-771-138-61	SWITCH, KEY BOARD (TIME)	

Ref. No.	Part No.	Description	Remarks
S012	1-771-138-61	SWITCH, KEY BOARD (FADER)	
S014	1-771-138-61	SWITCH, KEY BOARD (PROGRAM AE)	(TR317E/TR417E/TR427E/TR617E/TR717E)
S015	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)	(TR317E/TR417E/TR427E/TR617E/TR717E)
S016	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)	(TR918E)
A-7074-120-A	CF-67 (N-VHMMBO)	BOARD, COMPLETE	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)

A-7074-126-A	CF-67 (N-VHRIBO)	BOARD, COMPLETE	(TRV87E)

(Ref.No.:4000Series)			
< HOLDER >			
BH001	1-550-104-11	HOLDER, BATTERY	
< CAPACITOR >			
C001	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C004	1-110-569-11	TANTAL. CHIP 47uF 20%	6.3V
< CONNECTOR >			
CN001	1-785-760-11	CONNECTOR, FFC/FPC (ZIF) 45P	
CN002	1-566-540-11	CONNECTOR, FPC (NON ZIF) 8P	
* CN003	1-580-055-21	PIN, CONNECTOR (SMD) 2P	
CN004	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P	
CN005	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P	
CN007	1-778-283-11	CONNECTOR, FFC/FPC 4P	
CN008	1-766-644-21	CONNECTOR, FFC/FPC 8P (TRV87E)	
* CN009	1-580-055-21	PIN, CONNECTOR (SMD) 2P	
< DIODE >			
D002	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D005	8-719-073-03	DIODE MA8082-(K8).S0	
D006	8-719-073-03	DIODE MA8082-(K8).S0	
D008	8-719-421-27	DIODE MA728-(K8).S0	
D009	8-719-073-01	DIODE MA111-TX	
< TRANSISTOR >			
Q001	8-729-402-42	TRANSISTOR UN5213-TX	
Q002	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	(TRV87E)
Q003	8-729-230-72	TRANSISTOR 2SA1362-YG-EL	(TRV87E)
< RESISTOR >			
R002	1-216-833-91	RES-CHIP 10K 5%	1/16W
R003	1-216-833-91	RES-CHIP 10K 5%	1/16W
R004	1-216-833-91	RES-CHIP 10K 5%	1/16W
R005	1-216-833-91	RES-CHIP 10K 5%	1/16W
R006	1-216-822-11	METAL CHIP 1.2K 5%	1/16W
R007	1-216-822-11	METAL CHIP 1.2K 5%	1/16W
R008	1-216-822-11	METAL CHIP 1.2K 5%	1/16W
R009	1-216-849-11	METAL CHIP 220K 5%	1/16W (TRV87E)
R010	1-216-833-91	RES-CHIP 10K 5%	1/16W (TRV87E)
R011	1-216-853-11	METAL CHIP 470K 5%	1/16W (TRV87E)

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
R012	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	C308	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
R013	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	C309	1-164-172-11	CERAMIC CHIP	0.0056uF	10%	25V
R014	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	C310	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
R015	1-216-837-11	METAL CHIP	22K	5%	1/16W	C311	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
					(TRV87E)	C312	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
R016	1-216-829-11	METAL CHIP	4.7K	5%	1/16W						
					(TRV87E)	C313	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
R017	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	C314	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
R018	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	C315	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
R019	1-216-825-11	METAL CHIP	2.2K	5%	1/16W			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
R020	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	C316	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
R021	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	C317	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
								(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
R022	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	C318	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
R026	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	C321	1-113-991-11	TANTAL. CHIP	33uF	20%	16V
R027	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	C323	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
R034	1-216-838-11	METAL CHIP	27K	5%	1/16W	C324	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
R036	1-216-838-11	METAL CHIP	27K	5%	1/16W	C325	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
R043	1-216-864-11	METAL CHIP	0	5%	1/16W	C326	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
R048	1-216-864-11	METAL CHIP	0	5%	1/16W	C327	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< SWITCH >				C328	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
						C329	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
						C330	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
S001	1-771-138-61	SWITCH, KEY BOARD (DIGITAL EFFECT)				C332	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
					(TRV87E)	C333	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
S002	1-771-138-61	SWITCH, KEY BOARD (DATE)				C335	1-162-974-11	CERAMIC CHIP	0.01uF		50V
S003	1-771-029-21	SWITCH, TACTILE (PROGRAM AE)						(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
S004	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)				C336	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
S005	1-771-138-61	SWITCH, KEY BOARD (COUNTER RESET)				C337	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
S006	1-771-138-61	SWITCH, KEY BOARD (MENU)									
S007	1-771-029-21	SWITCH, TACTILE (EXPOSURE)				C338	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
S008	1-771-138-61	SWITCH, KEY BOARD (END SEARCH)				C339	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
S009	1-771-025-41	SWITCH, ROTARY (ENCODER)						(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
					(SEL/PUSH EXEC)	C340	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
S010	1-771-029-21	SWITCH, TACTILE (BACK LIGHT)				C341	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
S011	1-771-138-61	SWITCH, KEY BOARD (TITLE)				C342	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
S012	1-771-138-61	SWITCH, KEY BOARD (TIME)									
S013	1-771-029-31	SWITCH, TACTILE (FADER)				C343	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
S014	1-771-138-61	SWITCH, KEY BOARD (DISPLAY)				C344	1-164-506-11	CERAMIC CHIP	4.7uF		16V
						C345	1-164-506-11	CERAMIC CHIP	4.7uF		16V
						C346	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
						C346	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
A-7074-113-A	DD-134 (VO) BOARD, COMPLETE					C347	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
		(TRV37E/TRV47E/TRV48E)				C348	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
		*****				C349	1-164-505-11	CERAMIC CHIP	2.2uF		16V
A-7074-125-A	DD-134 (VHXRIBO) BOARD, COMPLETE							(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
		(TRV57E/TRV67E/TRV87E)				C350	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		*****						(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
A-7074-133-A	DD-134 (HXRIBO) BOARD, COMPLETE					C351	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
		(TR918E)									
		*****				C352	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
A-7074-151-A	DD-134 (LO) BOARD, COMPLETE							(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
		(TR317E/TR417E/427E)				C353	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
		*****				C354	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
A-7074-166-A	DD-134 (HMMBO) BOARD, COMPLETE					C355	1-125-822-11	TANTALUM	10uF	20%	10V
		(TR617E/TR717E)						(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
		*****				C356	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
		(Ref.No.;2000Series)									
		< CAPACITOR >				C358	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C301	1-162-960-11	CERAMIC CHIP	220PF	10%	50V	C360	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C302	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C361	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C303	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
C304	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C363	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C305	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)			
						C364	1-164-506-11	CERAMIC CHIP	4.7uF		16V
						C366	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
						C367	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description	Remarks
< CONNECTOR >			
* CN301	1-580-756-21	PIN, CONNECTOR (SMD) 7P	
CN931	1-691-520-11	CONNECTOR, BOARD TO BOARD 48P	
CN933	1-779-893-11	PIN, CONNECTOR (PC BOARD) 8P (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
< DIODE >			
D301	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D302	8-719-421-27	DIODE MA728-(K8).S0	
D304	8-719-073-03	DIODE MA8082-(K8).S0	
D305	8-719-056-89	DIODE MA8120-TX	
D306	8-719-078-02	DIODE 1SS357(T3SONY1)	
D308	8-719-078-02	DIODE 1SS357(T3SONY1) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
D310	8-719-078-02	DIODE 1SS357(T3SONY1)	
D311	8-719-078-02	DIODE 1SS357(T3SONY1)	
D312	8-719-078-02	DIODE 1SS357(T3SONY1) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
D313	8-719-078-02	DIODE 1SS357(T3SONY1) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
< FUSE >			
△ F302	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V)	
△ F303	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V)	
△ F304	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V)	
△ F305	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
△ F306	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V) (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
< FERRITE BEAD >			
FB310	1-414-760-21	FERRITE 0UH	
FB321	1-414-760-21	FERRITE 0UH (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
< IC >			
IC301	8-752-090-20	IC CXA3057R-T6	
< COIL >			
L301	1-416-670-11	INDUCTOR 33uH	
L302	1-416-669-11	INDUCTOR 22uH	
L303	1-412-056-11	INDUCTOR 4.7uH	
L304	1-416-669-11	INDUCTOR 22uH	
L305	1-416-670-11	INDUCTOR 33uH	
L306	1-416-669-11	INDUCTOR 22uH	
L307	1-412-056-11	INDUCTOR 4.7uH	
L308	1-412-056-11	INDUCTOR 4.7uH	
L309	1-412-056-11	INDUCTOR 4.7uH	
L313	1-414-400-41	INDUCTOR 22uH	
L314	1-412-056-11	INDUCTOR 4.7uH	
L315	1-414-400-41	INDUCTOR 22uH	
L316	1-412-056-11	INDUCTOR 4.7uH	
L317	1-414-400-41	INDUCTOR 22uH	
L318	1-416-669-11	INDUCTOR 22uH (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
L319	1-412-056-11	INDUCTOR 4.7uH (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	

Ref. No.	Part No.	Description	Remarks
< TRANSISTOR >			
Q301	8-729-047-68	TRANSISTOR 2SK1830-TE85L	
Q302	8-729-046-77	TRANSISTOR SI4963DY-T1	
Q303	8-729-804-41	TRANSISTOR 2SB1122-ST-TD	
Q304	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q305	8-729-047-68	TRANSISTOR 2SK1830-TE85L	
Q307	8-729-804-41	TRANSISTOR 2SB1122-ST-TD	
Q308	8-729-046-98	TRANSISTOR CPH6702-TL	
Q309	8-729-046-98	TRANSISTOR CPH6702-TL	
Q310	8-729-046-98	TRANSISTOR CPH6702-TL	
Q311	8-729-046-98	TRANSISTOR CPH6702-TL	
Q312	8-729-046-98	TRANSISTOR CPH6702-TL	
Q313	8-729-044-58	TRANSISTOR SI2304DS-T1	
Q316	8-729-046-98	TRANSISTOR CPH6702-TL (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
Q317	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q318	8-729-101-07	TRANSISTOR 2SB798-T1-DLDD	
Q319	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q320	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q321	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q322	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q323	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q325	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q327	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
Q328	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
Q329	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q330	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q331	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q332	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
Q333	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
< RESISTOR >			
R301	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R302	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R303	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R304	1-216-839-11	METAL CHIP 33K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R305	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R306	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R307	1-216-864-11	METAL CHIP 0 5% 1/16W	
R309	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R310	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R311	1-216-813-11	METAL CHIP 220 5% 1/16W	
R312	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R313	1-216-150-91	RES-CHIP 10 5% 1/8W	
R314	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R315	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R316	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R317	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R318	1-216-837-11	METAL CHIP 22K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R319	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R322	1-216-296-91	SHORT 0 (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
R323	1-216-841-11	METAL CHIP 47K 5% 1/16W	

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
R324	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R325	1-216-841-11	METAL CHIP 47K 5%	1/16W
R326	1-216-837-11	METAL CHIP 22K 5%	1/16W
R327	1-218-879-11	METAL CHIP 22K 0.5%	1/16W
R328	1-218-871-11	METAL CHIP 10K 0.5%	1/16W
R329	1-216-845-11	METAL CHIP 100K 5%	1/16W
R330	1-216-864-11	METAL CHIP 0 5%	1/16W
R331	1-216-864-11	METAL CHIP 0 5%	1/16W
R332	1-218-877-11	METAL CHIP 18K 0.5%	1/16W
R333	1-216-837-11	METAL CHIP 22K 5%	1/16W
R335	1-218-891-11	METAL CHIP 68K 0.5%	1/16W
R336	1-218-895-11	METAL CHIP 100K 0.5%	1/16W
		(TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E)	
R336	1-218-891-11	METAL CHIP 68K 0.5%	1/16W
		(TR617E/TR717E/TRV57E/TRV67E/TRV87E)	
R337	1-216-864-11	METAL CHIP 0 5%	1/16W
		(TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E)	
R337	1-218-879-11	METAL CHIP 22K 0.5%	1/16W
		(TR617E/TR717E/TRV57E/TRV67E/TRV87E)	
R338	1-218-903-11	METAL CHIP 220K 0.5%	1/16W
R339	1-216-845-11	METAL CHIP 100K 5%	1/16W
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R340	1-216-841-11	METAL CHIP 47K 5%	1/16W
R341	1-216-845-11	METAL CHIP 100K 5%	1/16W
R342	1-216-845-11	METAL CHIP 100K 5%	1/16W
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R343	1-216-837-11	METAL CHIP 22K 5%	1/16W
R344	1-216-864-11	METAL CHIP 0 5%	1/16W
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R345	1-218-903-11	METAL CHIP 220K 0.5%	1/16W
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R346	1-218-891-11	METAL CHIP 68K 0.5%	1/16W
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R347	1-218-895-11	METAL CHIP 100K 0.5%	1/16W
R348	1-218-887-11	METAL CHIP 47K 0.5%	1/16W
R349	1-216-864-11	METAL CHIP 0 5%	1/16W
		(TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E)	
R349	1-218-877-11	METAL CHIP 18K 0.5%	1/16W
		(TR617E/TR717E/TRV57E/TRV67E/TRV87E)	
R354	1-216-833-91	RES-CHIP 10K 5%	1/16W
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R357	1-218-879-11	METAL CHIP 22K 0.5%	1/16W
R358	1-218-871-11	METAL CHIP 10K 0.5%	1/16W
		< TRANSFORMER >	
△ T301	1-435-252-21	TRANSFORMER, DC-DC CONVERTER	
A-7074-162-A EJ-29 (CO) BOARD, COMPLETE			
		(TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)	

		(Ref.No.;2000Series)	
		< CONNECTOR >	
CN251	1-766-346-21	CONNECTOR, FFC/FPC 16P	
CN252	1-764-709-11	CONNECTOR, FFC/FPC 10P	
CN253	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P	
		< DIODE >	
D253	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D256	8-719-073-01	DIODE MA111-TX	
D257	8-719-073-01	DIODE MA111-TX	

Ref. No.	Part No.	Description	Remarks
		< FERRITE BEAD >	
FB251	1-414-760-21	FERRITE 0UH	
FB252	1-414-760-21	FERRITE 0UH	
FB253	1-414-760-21	FERRITE 0UH	
		< JACK >	
J251	1-565-276-31	JACK, WING SMALL (LANC)	
		< RESISTOR >	
R251	1-216-821-11	METAL CHIP 1K 5%	1/16W
R252	1-216-821-11	METAL CHIP 1K 5%	1/16W
R253	1-216-821-11	METAL CHIP 1K 5%	1/16W
R254	1-216-821-11	METAL CHIP 1K 5%	1/16W
R255	1-216-821-11	METAL CHIP 1K 5%	1/16W
R256	1-216-821-11	METAL CHIP 1K 5%	1/16W
R257	1-216-821-11	METAL CHIP 1K 5%	1/16W
R258	1-216-821-11	METAL CHIP 1K 5%	1/16W
R259	1-216-029-00	METAL CHIP 150 5%	1/10W
		< SWITCH >	
S251	1-771-331-21	SWITCH, PUSH (1 KEY) (EJECT)	
A-7074-149-A EJ-30(VHXRIBO) BOARD, COMPLETE			
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	

		(Ref.No.;2000Series)	
		< CONNECTOR >	
CN251	1-766-346-21	CONNECTOR, FFC/FPC 16P	
CN252	1-764-709-11	CONNECTOR, FFC/FPC 10P	
CN253	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P	
		< DIODE >	
D253	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D256	8-719-073-01	DIODE MA111-TX	
D257	8-719-073-01	DIODE MA111-TX	
		< FERRITE BEAD >	
FB251	1-414-228-11	INDUCTOR CHIP 0UH	
FB252	1-414-228-11	INDUCTOR CHIP 0UH	
FB253	1-414-228-11	INDUCTOR CHIP 0UH	
		< JACK >	
J251	1-565-276-31	JACK, WING SMALL (LANC)	
		< RESISTOR >	
R251	1-216-821-11	METAL CHIP 1K 5%	1/16W
R252	1-216-821-11	METAL CHIP 1K 5%	1/16W
R253	1-216-821-11	METAL CHIP 1K 5%	1/16W
R254	1-216-821-11	METAL CHIP 1K 5%	1/16W
R255	1-216-821-11	METAL CHIP 1K 5%	1/16W
R256	1-216-821-11	METAL CHIP 1K 5%	1/16W
R257	1-216-821-11	METAL CHIP 1K 5%	1/16W
R258	1-216-821-11	METAL CHIP 1K 5%	1/16W
R259	1-216-029-00	METAL CHIP 150 5%	1/10W

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
		< SWITCH >	
S251	1-771-331-21	SWITCH, PUSH (1 KEY) (EJECT➡)	
		FP-249 MOUNT (Not supplied)	

		(Ref.No.;1000Series)	
	3-965-552-01	HOLDER(T), SENSOR	
		< HOLE ELEMENT >	
H001	8-719-061-28	DIODE HW-105C-FT-V (S REEL)	
H002	8-719-061-28	DIODE HW-105C-FT-V (T REEL)	
		< TRANSISTOR >	
Q001	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE TOP)	
		< SWITCH >	
S001	1-692-614-11	SWITCH, PUSH (3 KEY)	
		1-658-213-11 FP-355 FLEXIBLE BOARD	

		(Ref.No.;1000Series)	
		< DIODE >	
D001	8-719-988-42	DIODE GL453	
		1-658-214-11 FP-356 FLEXIBLE BOARD	

		(Ref.No.;1000Series)	
	3-965-551-01	HOLDER(S), SENSOR	
		< TRANSISTOR >	
Q002	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE END)	
		A-7074-135-A MA-374 (HXRIBO) BOARD, COMPLETE	
		(TR918E)	

	A-7074-153-A	MA-374 (LO) BOARD, COMPLETE	
		(TR317E/TR417E)	

	A-7074-157-A	MA-374 (O) BOARD, COMPLETE (TR427E)	

	A-7074-167-A	MA-374 (HMMBO) BOARD, COMPLETE	
		(TR617E/TR717E)	

		(Ref.No.;3000Series)	
		< CAPACITOR >	
C301	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	
		(TR918E)	
C302	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C303	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C304	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C305	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	

Ref. No.	Part No.	Description	Remarks
C321	1-162-960-11	CERAMIC CHIP 220PF 10% 50V	
		(TR317E/TRV417E)	
C322	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
		(TR317E/TR417E/TR427E/TR617E/TR717E)	
C323	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
		(TR918E)	
C325	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR317E/TR417E/TR427E/TR617E/TR717E)	
C326	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C327	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	
		(TR918E)	
C328	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	
		(TR918E)	
C329	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C330	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
		(TR317E/TR417E/TR427E/TR617E/TR717E)	
C331	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
		(TR918E)	
C332	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
		(TR918E)	
C333	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	
		(TR317E/TR417E/TR427E/TR617E/TR717E)	
C334	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C335	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C336	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR317E/TR417E/TR427E/TR617E/TR717E)	
C337	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C338	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		(TR918E)	
C339	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	
		(TR918E)	
C340	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	
		(TR918E)	
C341	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	
		(TR317E/TR417E/TR427E/TR617E/TR717E)	
C342	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
		(TR317E/TR417E/TR427E/TR617E/TR717E)	
C343	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
		(TR918E)	
C344	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
		(TR918E)	
C345	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
		(TR918E)	
C346	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
		(TR918E)	
C347	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
		(TR918E)	
C348	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
		(TR918E)	
C349	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
		(TR918E)	
C350	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
		(TR918E)	
C351	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
		(TR918E)	

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C352	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V (TR918E)		< TRANSISTOR >			
C353	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TR317E/TR417E/TR427E/TR617E/TR717E)		Q301	8-729-402-42	TRANSISTOR UN5213-TX (TR317E/TR417E/TR427E/TR617E/TR717E)	
C354	1-104-851-11	TANTAL. CHIP 10uF 20% 4V (TR317E/TR417E/TR427E/TR617E/TR717E)		Q302	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX (TR918E)	
C355	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TR918E)		Q302	8-729-422-51	TRANSISTOR UN5110-QRS-TX (TR317E/TR417E/TR427E/TR617E/TR717E)	
C356	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TR317E/TR417E/TR427E/TR617E/TR717E)		Q303	8-729-026-48	TRANSISTOR 2SA1037AK-T146-Q (TR918E)	
C357	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V		Q304	8-729-920-85	TRANSISTOR 2SD1664-T100-QR	
C358	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V		Q321	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX (TR317E/TR417E/TR427E/TR617E/TR717E)	
C359	1-109-982-11	CERAMIC CHIP 1uF 10% 10V (TR317E/TR417E/TR427E/TR617E/TR717E)		Q322	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX (TR317E/TR417E/TR427E/TR617E/TR717E)	
C360	1-162-927-11	CERAMIC CHIP 100PF 5% 50V (TR317E/TR417E/TR427E/TR617E/TR717E)		< RESISTOR >			
C362	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V (TR918E)		R301	1-216-823-11	METAL CHIP 1.5K 5% 1/16W (TR918E)	
C363	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V (TR918E)		R302	1-216-864-11	METAL CHIP 0 5% 1/16W (TR918E)	
C364	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V (TR918E)		R303	1-216-810-11	METAL CHIP 120 5% 1/16W (TR918E)	
< CONNECTOR >				R304	1-216-864-11	METAL CHIP 0 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
* CN301	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P		R305	1-216-817-11	METAL CHIP 470 5% 1/16W	
* CN302	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P (TR918E)		R306	1-216-864-11	METAL CHIP 0 5% 1/16W (TR918E)	
CN303	1-779-334-11	CONNECTOR, FFC/FPC 20P		R307	1-216-815-11	METAL CHIP 330 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
< DIODE >				R308	1-216-311-00	METAL CHIP 6.8 5% 1/10W (TR918E)	
D301	8-719-078-23	DIODE DCR2815 (TR918E)		R308	1-216-309-00	METAL CHIP 5.6 5% 1/10W (TR317E/TR417E/TR427E/TR617E/TR717E)	
D302	8-719-060-65	DIODE LNA4905L01S0		R309	1-216-302-00	METAL CHIP 2.7 5% 1/10W	
D303	8-719-067-44	DIODE CL-310IRS-X-TU (TR317E/TR417E/TR427E/TR617E/TR717E)		R310	1-216-864-11	METAL CHIP 0 5% 1/16W	
D304	8-719-061-82	DIODE TLSU1002(TPX1,SONY)		R312	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
D305	8-719-073-01	DIODE MA111-TX		R313	1-216-864-11	METAL CHIP 0 5% 1/16W	
D321	8-719-073-03	DIODE MA8082-(K8).S0		R314	1-216-837-11	METAL CHIP 22K 5% 1/16W (TR617E/TR717E/TR918E)	
D322	8-719-073-03	DIODE MA8082-(K8).S0 (TR918E)		R315	1-216-847-11	METAL CHIP 150K 5% 1/16W (TR617E/TR717E/TR918E)	
D323	8-719-073-01	DIODE MA111-TX		< FUSE >			
< FUSE >				R321	1-216-864-11	METAL CHIP 0 5% 1/16W (TR918E)	
△ F301	1-533-874-11	FUSE, MICRO (0.2A 24V)		R322	1-216-864-11	METAL CHIP 0 5% 1/16W	
< IC >				R323	1-216-864-11	METAL CHIP 0 5% 1/16W	
IC301	8-749-012-83	IC PNA4S13M01S0 (TR427E/TR617E/TR717E/TR918E)		R324	1-216-864-11	METAL CHIP 0 5% 1/16W (TR918E)	
IC321	8-759-643-77	IC BH7870KV-E2 (TR918E)		R325	1-216-839-11	METAL CHIP 33K 5% 1/16W (TR918E)	
IC322	8-759-339-63	IC NJM2118V-TE2 (TR317E/TR417E/TR427E/TR617E/TR717E)		< JACK >			
< JACK >				J321	1-691-737-11	JACK (SMALL TYPE) (MIC) (TR918E)	
J321	1-568-027-11	JACK, SMALL TYPE (MIC) (TR317E/TR417E/TR427E/TR617E/TR717E)		J321	1-568-027-11	JACK, SMALL TYPE (MIC) (TR317E/TR417E/TR427E/TR617E/TR717E)	
< COIL >				< COIL >			
L301	1-414-754-11	INDUCTOR 10uH (TR918E)		L301	1-414-754-11	INDUCTOR 10uH (TR918E)	
L301	1-216-295-91	SHORT 0 (Note) (TR317E/417/TR427E/TR617E/TR717E)		L301	1-216-295-91	SHORT 0 (Note) (TR317E/417/TR427E/TR617E/TR717E)	

Note : Resistor is mounted to the location where L301 is printed.

Note : The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
R332	1-216-841-11	METAL CHIP 47K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
R333	1-216-841-11	METAL CHIP 47K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
R334	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TR918E)	
R335	1-216-829-11	METAL CHIP 4.7K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
R336	1-216-825-11	METAL CHIP 2.2K 5% 1/16W (TR918E)	
R337	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TR918E)	
R338	1-216-821-11	METAL CHIP 1K 5% 1/16W (TR918E)	
R339	1-216-821-11	METAL CHIP 1K 5% 1/16W (TR918E)	
R340	1-216-830-11	METAL CHIP 5.6K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
R341	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R342	1-216-830-11	METAL CHIP 5.6K 5% 1/16W (TR918E)	
R343	1-216-830-11	METAL CHIP 5.6K 5% 1/16W (TR918E)	
R344	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R345	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
R346	1-216-838-11	METAL CHIP 27K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
R347	1-216-838-11	METAL CHIP 27K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
R348	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R349	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R350	1-216-836-11	METAL CHIP 18K 5% 1/16W (TR918E)	
R351	1-216-836-11	METAL CHIP 18K 5% 1/16W (TR918E)	
R352	1-216-864-11	METAL CHIP 0 5% 1/16W (TR918E)	
R353	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TR918E)	
R354	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TR918E)	
R355	1-216-864-11	METAL CHIP 0 5% 1/16W (TR918E)	
R356	1-216-839-11	METAL CHIP 33K 5% 1/16W (TR918E)	
R357	1-216-839-11	METAL CHIP 33K 5% 1/16W (TR918E)	
R358	1-216-803-11	METAL CHIP 33 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E)	
R359	1-216-832-11	METAL CHIP 8.2K 5% 1/16W (TR918E)	
R360	1-216-839-11	METAL CHIP 33K 5% 1/16W (TR918E)	
R361	1-216-836-11	METAL CHIP 18K 5% 1/16W (TR918E)	
R362	1-216-818-11	METAL CHIP 560 5% 1/16W (TR918E)	
R363	1-216-833-91	RES-CHIP 10K 5% 1/16W (TR918E)	
R364	1-216-864-11	METAL CHIP 0 5% 1/16W (TR918E)	
R365	1-216-864-11	METAL CHIP 0 5% 1/16W (TR918E)	

Ref. No.	Part No.	Description	Remarks
		< SWITCH >	
S301	1-692-605-11	SWITCH, SLIDE (LIGHT ON/AUTO/OFF) (TR617E/TR717E/TR918E)	
S302	1-771-331-51	SWITCH, PUSH (1 KEY) (CAMERA ON)	
S303	1-771-331-21	SWITCH, PUSH (1 KEY) (PLAYER ON)	
	A-7074-114-A	MA-375 (N-VLO) BOARD, COMPLETE (TRV37E) *****	
	A-7074-191-A	MA-375 (VO) BOARD, COMPLETE (TRV47E/TRV48E) *****	
	A-7074-121-A	MA-375 (N-VHMMBO) BOARD, COMPLETE (TRV57E/TRV67E) *****	
	A-7074-127-A	MA-375 (N-VHXRIBO) BOARD, COMPLETE (TRV87E) ***** (Ref.No.,3000Series)	
		< CAPACITOR >	
C301	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V (TRV87E)	
C302	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	
C303	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	
C304	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	
C305	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	
C322	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
C323	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TRV87E)	
C325	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
C326	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	
C327	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V (TRV87E)	
C328	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V (TRV87E)	
C329	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	
C330	1-162-927-11	CERAMIC CHIP 100PF 5% 50V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
C331	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TRV87E)	
C332	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TRV87E)	
C333	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
C334	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	
C335	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	
C336	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
C337	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TRV87E)	

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C338	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)	D321	8-719-073-03	DIODE MA8082-(K8).S0	
C339	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TRV87E)	D322	8-719-073-03	DIODE MA8082-(K8).S0	(TRV87E)
C340	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TRV87E)	D323	8-719-073-01	DIODE MA111-TX	
C341	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)			< FUSE >	
C342	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	△F301	1-533-874-11	FUSE, MICRO (0.2A 24V)	
C343	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TRV87E)			< FERRITE BEAD >	
C344	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TRV87E)	FB321	1-414-760-21	FERRITE 0UH	
C345	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV87E)			< IC >	
C346	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TRV87E)	IC301	8-749-012-83	IC PNA4S13M01S0	(TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C347	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TRV87E)	IC321	8-759-643-77	IC BH7870KV-E2	(TRV87E)
				IC322	8-759-339-63	IC NJM2118V-TE2	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
						< JACK >	
C348	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV87E)	J321	1-691-737-11	JACK (SMALL TYPE) (MIC)	(TRV87E)
C349	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87E)	J321	1-568-027-11	JACK, SMALL TYPE (MIC)	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C350	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87E)			< COIL >	
C351	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87E)	L301	1-414-754-11	INDUCTOR 10uH	(TRV87E)
C352	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87E)	L301	1-216-295-91	SHORT 0 (Note)	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
						< TRANSISTOR >	
C353	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	Q301	8-729-402-42	TRANSISTOR UN5213-TX	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C354	1-104-851-11	TANTAL. CHIP 10uF 20% 4V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	Q302	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	(TRV87E)
C355	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)	Q302	8-729-422-51	TRANSISTOR UN5110-QRS-TX	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C356	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	Q303	8-729-026-48	TRANSISTOR 2SA1037AK-T146-Q	(TRV87E)
C357	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V		Q304	8-729-920-85	TRANSISTOR 2SD1664-T100-QR	
C358	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V		Q316	8-729-046-98	TRANSISTOR XN09D58001S0	
C359	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	Q321	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C360	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	Q322	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C362	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87E)	Q327	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).S0	
C363	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87E)	Q328	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).S0	
C364	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87E)	Q332	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).S0	
						< RESISTOR >	
		< CONNECTOR >		R301	1-216-823-11	METAL CHIP 1.5K 5%	1/16W (TRV87E)
* CN301	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P		R302	1-216-864-11	METAL CHIP 0 5%	1/16W (TRV87E)
* CN302	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P (TRV87E)		R303	1-216-810-11	METAL CHIP 120 5%	1/16W (TRV87E)
CN303	1-779-334-11	CONNECTOR, FFC/FPC 20P		R304	1-216-864-11	METAL CHIP 0 5%	1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
		< DIODE >		R305	1-216-817-11	METAL CHIP 470 5%	1/16W
D301	8-719-078-23	DIODE DCR2815	(TRV87E)				
D302	8-719-060-65	DIODE LNA4905L01S0					
D303	8-719-067-44	DIODE CL-310IRS-X-TU	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)				
D304	8-719-061-82	DIODE TLSU1002(TPX1,SONY)					
D305	8-719-073-01	DIODE MA111-TX					

Note : Resistor is mounted to the location where L301 is printed.

Note : The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
R306	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV87E)	
R307	1-216-815-11	METAL CHIP 330 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R308	1-216-311-00	METAL CHIP 6.8 5% 1/10W (TRV87E)	
R308	1-216-309-00	METAL CHIP 5.6 5% 1/10W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R309	1-216-302-00	METAL CHIP 2.7 5% 1/10W	
R310	1-216-864-11	METAL CHIP 0 5% 1/16W	
R312	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R313	1-216-864-11	METAL CHIP 0 5% 1/16W	
R314	1-216-837-11	METAL CHIP 22K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R315	1-216-847-11	METAL CHIP 150K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R321	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV87E)	
R322	1-216-864-11	METAL CHIP 0 5% 1/16W	
R323	1-216-864-11	METAL CHIP 0 5% 1/16W	
R324	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV87E)	
R325	1-216-839-11	METAL CHIP 33K 5% 1/16W (TRV87E)	
R326	1-216-836-11	METAL CHIP 18K 5% 1/16W (TRV87E)	
R327	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R328	1-216-817-11	METAL CHIP 470 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R329	1-216-833-91	RES-CHIP 10K 5% 1/16W (TRV87E)	
R331	1-216-825-11	METAL CHIP 2.2K 5% 1/16W (TRV87E)	
R332	1-216-841-11	METAL CHIP 47K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R333	1-216-841-11	METAL CHIP 47K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R334	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TRV87E)	
R335	1-216-829-11	METAL CHIP 4.7K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R336	1-216-825-11	METAL CHIP 2.2K 5% 1/16W (TRV87E)	
R337	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TRV87E)	
R338	1-216-821-11	METAL CHIP 1K 5% 1/16W (TRV87E)	
R339	1-216-821-11	METAL CHIP 1K 5% 1/16W (TRV87E)	
R340	1-216-830-11	METAL CHIP 5.6K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R341	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R342	1-216-830-11	METAL CHIP 5.6K 5% 1/16W (TRV87E)	
R343	1-216-830-11	METAL CHIP 5.6K 5% 1/16W (TRV87E)	
R344	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R345	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R346	1-216-838-11	METAL CHIP 27K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	

Ref. No.	Part No.	Description	Remarks
R347	1-216-838-11	METAL CHIP 27K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R348	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R349	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R350	1-216-836-11	METAL CHIP 18K 5% 1/16W (TRV87E)	
R351	1-216-836-11	METAL CHIP 18K 5% 1/16W (TRV87E)	
R352	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV87E)	
R353	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TRV87E)	
R354	1-216-831-11	METAL CHIP 6.8K 5% 1/16W (TRV87E)	
R355	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV87E)	
R356	1-216-839-11	METAL CHIP 33K 5% 1/16W (TRV87E)	
R357	1-216-839-11	METAL CHIP 33K 5% 1/16W (TRV87E)	
R358	1-216-803-11	METAL CHIP 33 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
R359	1-216-832-11	METAL CHIP 8.2K 5% 1/16W (TRV87E)	
R360	1-216-839-11	METAL CHIP 33K 5% 1/16W (TRV87E)	
R361	1-216-836-11	METAL CHIP 18K 5% 1/16W (TRV87E)	
R362	1-216-818-11	METAL CHIP 560 5% 1/16W (TRV87E)	
R363	1-216-833-91	RES-CHIP 10K 5% 1/16W (TRV87E)	
R364	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV87E)	
R365	1-216-864-11	METAL CHIP 0 5% 1/16W (TRV87E)	
< SWITCH >			
S301	1-692-605-11	SWITCH, SLIDE (LIGHT ON/AUTO/OFF) (TRV57E/TRV67E/TRV87E)	
S302	1-771-331-51	SWITCH, PUSH (1 KEY) (CAMERA ON)	
S303	1-771-331-21	SWITCH, PUSH (1 KEY) (PLAYER ON)	

A-7074-141-A PD-117 (P-VLO) BOARD, COMPLETE

(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)

(Ref.No.;1000Series)

< CAPACITOR >

C5501	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C5503	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5504	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5506	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5507	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5508	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5509	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C5510	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5511	1-164-739-11	CERAMIC CHIP	560PF	5%	50V

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C5512	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V	< TRANSISTOR >			
C5513	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V	Q5501	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)
C5514	1-119-750-11	TANTAL. CHIP	22uF 20% 6.3V	Q5601	8-729-042-29	TRANSISTOR	RN1104F(TPL3)
C5515	1-164-357-11	CERAMIC CHIP	1000PF 5% 50V	Q5602	8-729-039-43	TRANSISTOR	FP216-TL
C5516	1-164-217-11	CERAMIC CHIP	150PF 5% 50V	Q5603	8-729-042-29	TRANSISTOR	RN1104F(TPL3)
C5517	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	Q5604	8-729-042-58	TRANSISTOR	RN2102F(TPL3)
C5518	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	< RESISTOR >			
C5519	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	R5501	1-216-853-11	METAL CHIP	470K 5% 1/16W
C5520	1-113-994-11	TANTAL. CHIP	6.8uF 20% 16V	R5503	1-218-895-11	METAL CHIP	100K 0.5% 1/16W
C5521	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	R5504	1-216-845-11	METAL CHIP	100K 5% 1/16W
C5522	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V	R5505	1-216-835-11	METAL CHIP	15K 5% 1/16W
C5523	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V	R5506	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
C5524	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	R5507	1-216-841-11	METAL CHIP	47K 5% 1/16W
C5527	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	R5508	1-216-843-11	METAL CHIP	68K 5% 1/16W
C5529	1-107-725-11	CERAMIC CHIP	0.1uF 10% 16V	R5509	1-216-837-11	METAL CHIP	22K 5% 1/16W
C5602	1-125-822-11	TANTALUM	10uF 20% 10V	R5510	1-216-843-11	METAL CHIP	68K 5% 1/16W
C5603	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	R5511	1-216-857-11	METAL CHIP	1M 5% 1/16W
C5604	1-164-657-11	CERAMIC CHIP	0.015uF 10% 50V	R5512	1-216-845-11	METAL CHIP	100K 5% 1/16W
C5605	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V	R5514	1-216-864-11	METAL CHIP	0 5% 1/16W
C5606	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V	R5516	1-216-833-91	RES-CHIP	10K 5% 1/16W
△ C5607	1-131-959-91	CERAMIC CHIP	12PF 10% 3KV	R5517	1-216-849-11	METAL CHIP	220K 5% 1/16W
C5608	1-125-822-11	TANTALUM	10uF 20% 10V	R5518	1-216-864-11	METAL CHIP	0 5% 1/16W
C5704	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V	R5519	1-216-864-11	METAL CHIP	0 5% 1/16W
< CONNECTOR >				R5520	1-216-864-11	METAL CHIP	0 5% 1/16W
CN5501	1-573-364-11	CONNECTOR, FFC/FPC 24P		R5522	1-216-864-11	METAL CHIP	0 5% 1/16W
* CN5502	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P		R5523	1-216-809-11	METAL CHIP	100 5% 1/16W
CN5604	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P		R5524	1-216-809-11	METAL CHIP	100 5% 1/16W
CN5701	1-779-893-11	PIN, CONNECTOR (PC BOARD) 8P		R5525	1-216-809-11	METAL CHIP	100 5% 1/16W
CN5702	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P		R5551	1-216-841-11	METAL CHIP	47K 5% 1/16W
CN5703	1-573-346-21	CONNECTOR, FFC/FPC 6P		R5553	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
CN5704	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P		R5557	1-216-864-11	METAL CHIP	0 5% 1/16W
CN5705	1-794-050-21	CONNECTOR, FFC/FPC (ZIF) 26P		R5559	1-216-864-11	METAL CHIP	0 5% 1/16W
< DIODE >				R5560	1-216-853-11	METAL CHIP	470K 5% 1/16W
D5502	8-713-102-80	DIODE 1T369-01-T8A		R5566	1-216-864-11	METAL CHIP	0 5% 1/16W
D5601	8-719-073-01	DIODE MA111-(K8).SO		R5567	1-216-864-11	METAL CHIP	0 5% 1/16W
D5602	8-719-062-44	DIODE PG1112H-TR		R5568	1-216-864-11	METAL CHIP	0 5% 1/16W
< FERRITE BEAD >				R5608	1-216-864-11	METAL CHIP	0 5% 1/16W
FB5502	1-414-760-21	INDUCTOR CHIP 0UH		R5609	1-216-833-91	RES-CHIP	10K 5% 1/16W
FB5503	1-414-760-21	INDUCTOR CHIP 0UH		R5610	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
< IC >				R5611	1-216-845-11	METAL CHIP	100K 5% 1/16W
IC5501	8-759-591-94	IC RB5P0030M1		R5612	1-216-834-11	METAL CHIP	12K 5% 1/16W
IC5502	8-759-591-93	IC CM7019L3-T4		R5613	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
IC5601	8-759-564-49	IC TC7W53FU(Te12R)		R5614	1-216-833-91	RES-CHIP	10K 5% 1/16W
IC5602	8-759-075-70	IC TA75S393F-TE85R		R5616	1-216-810-11	METAL CHIP	120 5% 1/16W
IC5701	8-759-573-02	IC BU9735K-E2		R5617	1-216-837-11	METAL CHIP	22K 5% 1/16W
< COIL >				R5618	1-216-817-11	METAL CHIP	470 5% 1/16W
L5501	1-469-525-91	INDUCTOR 10uH		R5702	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
L5504	1-469-525-91	INDUCTOR 10uH		R5704	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
L5505	1-412-956-21	INDUCTOR 27uH		R5706	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
L5601	1-419-387-21	INDUCTOR 100uH		R5707	1-216-828-11	METAL CHIP	3.9K 5% 1/16W
				R5708	1-216-832-11	METAL CHIP	8.2K 5% 1/16W
				R5711	1-216-809-11	METAL CHIP	100 5% 1/16W
				R5712	1-216-855-11	METAL CHIP	680K 5% 1/16W
				R5714	1-216-809-11	METAL CHIP	100 5% 1/16W

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

PD-117

PJ-99

PJ-100

Ref. No.	Part No.	Description	Remarks
< SWITCH >			
S5701	1-692-088-41	SWITCH, TACTILE	
S5702	1-692-088-41	SWITCH, TACTILE	
S5703	1-692-088-41	SWITCH, TACTILE	
S5704	1-692-088-41	SWITCH, TACTILE	
< TRANSFORMER >			
△ T5601	1-435-226-11	TRANSFORMER, INVERTER	
A-7074-136-A PJ-99 (HXRIBO) BOARD, COMPLETE (TR918E)			

A-7074-158-A PJ-99 (CO) BOARD, COMPLETE (TR317E/TR417E/TR427E/TR617E)			

A-7074-168-A PJ-99 (HMMBO) BOARD, COMPLETE (TR717E)			

(Ref.No.;4000Series)			
< CAPACITOR >			
C101	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C103	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C104	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(TR918E)	
C105	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(TR918E)	
C106	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(TR918E)	
< CONNECTOR >			
CN101	1-779-330-21	CONNECTOR, FFC/FPC 12P	
< DIODE >			
D101	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D102	8-719-073-03	DIODE MA8082-(K8).S0 (TR717E/TR918E)	
D103	8-719-062-16	DIODE 01ZA8.2(TPL3) (TR717E/TR918E)	
D104	8-719-062-16	DIODE 01ZA8.2(TPL3) (TR717E/TR918E)	
D105	8-719-988-61	DIODE 1SS355TE-17	
< JACK >			
J101	1-537-747-21	TERMINAL BOARD (A/V) (TR918E)	
J101	1-694-643-11	TERMINAL BOARD (A/V) (TR717E)	
J101	1-537-747-41	TERMINAL BOARD (A/V) (TR317E/TR417E/TR427E/TR617E)	
< COIL >			
L101	1-216-295-91	SHORT 0 (Note)	
L102	1-412-963-11	INDUCTOR 100uH	
L103	1-412-963-11	INDUCTOR 100uH (TR918E)	
L104	1-412-963-11	INDUCTOR 100uH (TR918E)	
< TRANSISTOR >			
Q101	8-729-101-07	TRANSISTOR 2SB798-T1-DL DK	
Q102	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	

Note : Resistor is mounted to the location where L101 is printed.

Ref. No.	Part No.	Description	Remarks
< RESISTOR >			
R102	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
R103	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R104	1-216-820-11	METAL CHIP 820 5% 1/16W	
R105	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R108	1-216-821-11	METAL CHIP 1K 5% 1/16W	
		(TR717E/TR918E)	
R109	1-216-821-11	METAL CHIP 1K 5% 1/16W	
< VARISTOR >			
VDR101	1-801-862-11	VARISTOR, CHIP	
VDR102	1-801-862-11	VARISTOR, CHIP (TR918E)	
A-7074-115-A PJ-100 (N-VLO) BOARD, COMPLETE (TRV47E/TRV57E:E,HK,AUS,CN,JE)			

A-7074-122-A PJ-100 (N-VHMMBO) BOARD, COMPLETE (TRV67E:E,HK,AUS,CN,JE)			

A-7074-128-A PJ-100 (N-VHXRIBO) BOARD, COMPLETE (TRV87E:E,HK,AUS,CN,JE)			

A-7074-139-A PJ-100 (P-VLO) BOARD, COMPLETE (TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK)			

A-7074-143-A PJ-100 (P-VHMMBO) BOARD, COMPLETE (TRV67E:AEP,EE,NE,RU,UK)			

A-7074-146-A PJ-100 (P-VHXRIBO) BOARD, COMPLETE (TRV87E:AEP,EE,NE,RU,UK)			

(Ref.No.;4000Series)			
< CAPACITOR >			
C101	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C103	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(TRV37E/TRV47E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/ TRV67E:AEP,EE,NE,RU,UK/TRV87E:AEP,EE,NE,RU,UK)	
C104	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(TRV87E:AEP,EE,NE,RU,UK)	
C105	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(TRV87E:AEP,EE,NE,RU,UK)	
C106	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		(TRV87E:AEP,EE,NE,RU,UK)	
< CONNECTOR >			
CN101	1-779-330-21	CONNECTOR, FFC/FPC 12P	
< DIODE >			
D101	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D102	8-719-073-03	DIODE MA8082-(K8).S0 (TRV67E/TRV87E)	
D103	8-719-062-16	DIODE 01ZA8.2(TPL3) (TRV67E/TRV87E)	
D104	8-719-062-16	DIODE 01ZA8.2(TPL3) (TRV67E/TRV87E)	
D105	8-719-988-61	DIODE 1SS355TE-17	
< JACK >			
J101	1-537-747-21	TERMINAL BOARD (A/V) (TRV87E)	
J101	1-537-747-41	TERMINAL BOARD (A/V) (TRV37E/TRV47E/TRV48E/TRV57E)	
J101	1-694-643-11	TERMINAL BOARD (A/V) (TRV67E)	

Note : The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
< COIL >			
L101	1-216-295-91	SHORT	0 (Note)
L102	1-216-295-91	SHORT	0 (Note)
		(TRV47E/TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE/	
		TRV87E:E,HK,AUS,CN,JE)	
L102	1-412-963-11	INDUCTOR	100uH
		(TRV37E/TRV47E/TRV48E/TRV57E: AEP,EE,NE,RU,UK/	
		TRV67E: AEP,EE,NE,RU,UK.0/TRV87E: AEP,EE,NE,RU,UK)	
L103	1-216-295-91	SHORT	0 (Note)
		(TRV87E:E,HK,AUS,CN,JE)	
L103	1-412-963-11	INDUCTOR	100uH
		(TRV87E: AEP,EE,NE,RU,UK)	
L104	1-216-295-91	SHORT	0 (Note)
		(TRV87E:E,HK,AUS,CN,JE)	
L104	1-412-963-11	INDUCTOR	100uH
		(TRV87E: AEP,EE,NE,RU,UK)	
< TRANSISTOR >			
Q101	8-729-101-07	TRANSISTOR	2SB798-T1-DL DK
Q102	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
Q102	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)
< RESISTOR >			
R102	1-216-138-00	METAL CHIP	3.3 5% 1/8W
R103	1-216-830-11	METAL CHIP	5.6K 5% 1/16W
R104	1-216-820-11	METAL CHIP	820 5% 1/16W
R105	1-216-836-11	METAL CHIP	18K 5% 1/16W
R108	1-216-821-11	METAL CHIP	1K 5% 1/16W
		(TRV67E/TRV87E)	
R109	1-216-821-11	METAL CHIP	1K 5% 1/16W
< VARISTOR >			
VDR101	1-801-862-11	VARISTOR, CHIP	
VDR102	1-801-862-11	VARISTOR, CHIP (TRV87E)	
A-7074-137-A SE-100 (HXRIBO) BOARD, COMPLETE			
(TR617E/TR717E/TR918E)			

(Ref.No.;6000Series)			
< CAPACITOR >			
C451	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C452	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C453	1-104-847-11	TANTAL. CHIP	22uF 20% 4V
C454	1-104-847-11	TANTAL. CHIP	22uF 20% 4V
C455	1-164-343-11	CERAMIC CHIP	0.056uF 10% 25V
C456	1-164-343-11	CERAMIC CHIP	0.056uF 10% 25V
C457	1-164-343-11	CERAMIC CHIP	0.056uF 10% 25V
C458	1-110-666-11	ELECT CHIP	22uF 20% 6.3V
C459	1-164-343-11	CERAMIC CHIP	0.056uF 10% 25V
C460	1-110-666-11	ELECT CHIP	22uF 20% 6.3V
C462	1-110-501-11	CERAMIC CHIP	0.33uF 10% 16V
C463	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C464	1-127-688-21	TANTAL. CHIP	10uF 20% 6.3V
< CONNECTOR >			
CN451	1-691-348-11	CONNECTOR, FFC/FPC (ZIF) 10P	

Note : Resistors are mounted to the location where L101,L102, L103, L104 are printed.

Ref. No.	Part No.	Description	Remarks
< IC >			
IC451	8-759-489-19	IC uPC6756GR-8JG-E2	
< COIL >			
L451	1-414-754-11	INDUCTOR	10uH
< RESISTOR >			
R451	1-216-837-11	METAL CHIP	22K 5% 1/16W
R452	1-216-837-11	METAL CHIP	22K 5% 1/16W
R453	1-216-837-11	METAL CHIP	22K 5% 1/16W
R454	1-216-837-11	METAL CHIP	22K 5% 1/16W
R455	1-216-857-11	METAL CHIP	1M 5% 1/16W
R456	1-216-833-91	RES-CHIP	10K 5% 1/16W
R457	1-216-833-91	RES-CHIP	10K 5% 1/16W
R458	1-216-857-11	METAL CHIP	1M 5% 1/16W
R460	1-216-835-11	METAL CHIP	15K 5% 1/16W
< SENSOR >			
SE451	1-418-252-11	SENSOR, ANGULAR VELOCITY (PITCH)	
SE452	1-418-252-21	SENSOR, ANGULAR VELOCITY (YAW)	
A-7074-116-A SE-101 (N-VLO) BOARD, COMPLETE (TRV47E)			

A-7074-123-A SE-101 (N-VHMMBO) BOARD, COMPLETE			
(TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE)			

A-7074-129-A SE-101 (N-VHXRIBO) BOARD, COMPLETE			
(TRV87E:E,HK,AUS,CN,JE)			

A-7074-140-A SE-101 (P-VLO) BOARD, COMPLETE			
(TRV37E/TRV48E)			

A-7074-144-A SE-101 (P-VHMMBO) BOARD, COMPLETE			
(TRV57E: AEP,EE,NE,RU,UK/TRV67E: AEP,EE,NE,RU,UK)			

A-7074-147-A SE-101 (P-VHXPBIO) BOARD, COMPLETE			
(TRV87E: AEP,EE,NE,RU,UK)			

(Ref.No.;6000Series)			
< CAPACITOR >			
C451	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
		(TRV57E/TRV67E/TRV87E)	
C452	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
		(TRV57E/TRV67E/TRV87E)	
C453	1-104-847-11	TANTAL. CHIP	22uF 20% 4V
		(TRV57E/TRV67E/TRV87E)	
C454	1-104-847-11	TANTAL. CHIP	22uF 20% 4V
		(TRV57E/TRV67E/TRV87E)	
C455	1-164-343-11	CERAMIC CHIP	0.056uF 10% 25V
		(TRV57E/TRV67E/TRV87E)	
C456	1-164-343-11	CERAMIC CHIP	0.056uF 10% 25V
		(TRV57E/TRV67E/TRV87E)	
C457	1-164-343-11	CERAMIC CHIP	0.056uF 10% 25V
		(TRV57E/TRV67E/TRV87E)	
C458	1-110-666-11	ELECT CHIP	22uF 20% 6.3V
		(TRV57E/TRV67E/TRV87E)	
C459	1-164-343-11	CERAMIC CHIP	0.056uF 10% 25V
		(TRV57E/TRV67E/TRV87E)	
C460	1-110-666-11	ELECT CHIP	22uF 20% 6.3V
		(TRV57E/TRV67E/TRV87E)	

Ref. No.	Part No.	Description	Remarks
C462	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V (TRV57E/TRV67E/TRV87E)	
C463	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TRV57E/TRV67E/TRV87E)	
C464	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V (TRV57E/TRV67E/TRV87E)	
C465	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV87E:AEP,EE,NE,RU,UK)	
C466	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/ TRV67E:AEP,EE,NE,RU,UK/ TRV87E:AEP,EE,NE,RU,UK)	
< CONNECTOR >			
CN451	1-691-348-11	CONNECTOR, FFC/FPC (ZIF) 10P	
< IC >			
IC451	8-759-489-19	IC uPC6756GR-8JG-E2 (TRV57E/TRV67E/TRV87E)	
< JACK >			
J451	1-695-514-21	JACK (SMALL TYPE) 1P (TRV87E)	
J451	1-695-514-11	JACK (SMALL TYPE) 1P (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
< COIL >			
L451	1-414-754-11	INDUCTOR 10uH (TRV57E/TRV67E/TRV87E)	
L452	1-412-963-11	INDUCTOR 100uH (TRV87E)	
L453	1-412-963-11	INDUCTOR 100uH (TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/ TRV67E:AEP,EE,NE,RU,UK/ TRV87E:AEP,EE,NE,RU,UK)	
L453	1-216-295-11	SHORT 0 (Note) (TRV47E/TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE/ TRV87E:E,HK,AUS,CN,JE)	
< RESISTOR >			
R451	1-216-837-11	METAL CHIP 22K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R452	1-216-837-11	METAL CHIP 22K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R453	1-216-837-11	METAL CHIP 22K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R454	1-216-837-11	METAL CHIP 22K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R455	1-216-857-11	METAL CHIP 1M 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R456	1-216-833-91	RES-CHIP 10K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R457	1-216-833-91	RES-CHIP 10K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R458	1-216-857-11	METAL CHIP 1M 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R460	1-216-835-11	METAL CHIP 15K 5% 1/16W (TRV57E/TRV67E/TRV87E)	
R461	1-216-864-11	METAL CHIP 0 5% 1/16W	
< SENSOR >			
SE451	1-418-252-11	SENSOR, ANGULAR VELOCITY (PITCH) (TRV57E/TRV67E/TRV87E)	
SE452	1-418-252-21	SENSOR, ANGULAR VELOCITY (YAW) (TRV57E/TRV67E/TRV87E)	

Note : Resistor is mounted to the location where L453 is printed.

Ref. No.	Part No.	Description	Remarks
< VARISTOR >			
VDR451	1-801-862-11	VARISTOR, CHIP (TRV87E)	
VDR452	1-801-862-11	VARISTOR, CHIP	
A-7094-704-A	VC-234 (P-LO) BOARD, COMPLETE (TR317E/TR417E/TR427E)		

A-7094-705-A	VC-234 (P-HMMBO) BOARD, COMPLETE (TR717E)		

A-7094-706-A	VC-234 (P-HXIBO) BOARD, COMPLETE (TR918E)		

A-7094-708-A	VC-234 (P-VLO) BOARD, COMPLETE (TRV37E/TRV47E/TRV48E)		

A-7094-709-A	VC-234 (P-VHMMBO) BOARD, COMPLETE (TRV67E)		

A-7094-710-A	VC-234 (P-VHXRIBO) BOARD, COMPLETE (TRV87E)		

A-7094-807-A	VC-234 (P-MMBO) BOARD, COMPLETE (TR617E)		

A-7094-808-A	VC-234 (P-VHMMBO) BOARD, COMPLETE (TRV57E)		

(Ref.No.;1000Series)			
< CAPACITOR >			
C101	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C102	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C103	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C105	1-119-661-11	TANTAL. CHIP 33uF 20% 6.3V	
C106	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C107	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C108	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C109	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C110	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C111	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C112	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C113	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C114	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C115	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C116	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C117	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C118	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C119	1-125-822-11	TANTALUM 10uF 20% 10V	
C121	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C123	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C125	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C128	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C130	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C131	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C133	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C134	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C135	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C136	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C137	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C138	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
C139	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C292	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C141	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C293	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C142	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V	C401	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C146	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C402	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C202	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V	C403	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C203	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C404	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C206	1-164-392-11	CERAMIC CHIP	390PF	5%	50V	C405	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C207	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V	C406	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C210	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C407	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C211	1-119-660-11	TANTAL. CHIP	4.7uF	20%	6.3V	C408	1-119-660-11	TANTAL. CHIP	4.7uF	20%	6.3V
C212	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C409	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C213	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C410	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C216	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C411	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C217	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C412	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C218	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C413	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C219	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C414	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C220	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C415	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C221	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C416	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C222	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C417	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C223	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C418	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C224	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C419	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C225	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C420	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C226	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C421	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C227	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C422	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C228	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C423	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C231	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C424	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C232	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	C425	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C233	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C427	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C234	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C428	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C236	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C429	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C237	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	C430	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C239	1-104-851-11	TANTAL. CHIP	10uF	20%	4V	C431	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C240	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C433	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C241	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C434	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C243	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C435	1-164-315-11	CERAMIC CHIP	470PF	2.00%	50V
C244	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C436	1-164-315-11	CERAMIC CHIP	470PF	2.00%	50V
C245	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C501	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C246	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C502	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C247	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C503	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C249	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C504	1-115-156-11	CERAMIC CHIP	1uF		10V
C250	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	C505	1-115-156-11	CERAMIC CHIP	1uF		10V
C253	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	C506	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C254	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V	C507	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
					(TR918E/TRV87E)	C508	1-115-156-11	CERAMIC CHIP	1uF		10V
C255	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C509	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
					(TR918E/TRV87E)	C511	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V
C256	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C512	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C257	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C513	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
					(TR918E/TRV87E)	C514	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C258	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C515	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
					(TR918E/TRV87E)	C516	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C259	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C517	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C260	1-104-851-11	TANTAL. CHIP	10uF	20%	4V	C518	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C262	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C519	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C263	1-104-851-11	TANTAL. CHIP	10uF	20%	4V	C520	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C264	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C521	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C265	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C522	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C266	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C523	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C291	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C524	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
						C525	1-115-156-11	CERAMIC CHIP	1uF		10V
											(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C526	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)		C672	1-126-246-11	ELECT CHIP 220uF 20% 4V (TR717E/TR918E/TRV67E/TRV87E)	
C527	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V		C673	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TR717E/TR918E/TRV67E/TRV87E)	
C552	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V		C701	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V	
C554	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V		C702	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C556	1-125-822-11	TANTALUM 10uF 20% 10V		C705	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C559	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V		C706	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	
C560	1-162-962-11	CERAMIC CHIP 470PF 10% 50V		C707	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
C561	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V		C708	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V	
C562	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V		C709	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
C563	1-119-661-11	TANTAL. CHIP 33uF 20% 6.3V		C710	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V (TRV87E)	
C564	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V		C711	1-104-851-11	TANTAL. CHIP 10uF 20% 4V	
C565	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V		C712	1-104-851-11	TANTAL. CHIP 10uF 20% 4V (TR918E/TRV87E)	
C566	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V		C713	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V	
C568	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V		C714	1-119-661-11	TANTAL. CHIP 33uF 20% 6.3V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
C569	1-115-156-11	CERAMIC CHIP 1uF 10V		C715	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C570	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V		C716	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
C571	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V		C717	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V (TR918E/TRV87E)	
C572	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V		C718	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
C573	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V		C719	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V (TR918E/TRV87E)	
C641	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V		C720	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
C644	1-127-760-91	CERAMIC CHIP 4.7uF 10% 6.3V		C721	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C645	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V		C722	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C646	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V		C723	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C647	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV87E)		C724	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V (TR918E/TRV87E)	
C648	1-164-677-11	CERAMIC CHIP 0.033uF 10% 16V		C725	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V (TR918E/TRV87E)	
C649	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V		C726	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V (TR918E/TRV87E)	
C650	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TR717E/TR918E/TRV67E/TRV87E)		C727	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V (TR918E/TRV87E)	
C651	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V		C728	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	
C652	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V (TR717E/TR918E/TRV67E/TRV87E)		C729	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	
C653	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V		C730	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V (TR918E/TRV87E)	
C654	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V		C731	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C655	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V		C732	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V	
C656	1-162-927-11	CERAMIC CHIP 100PF 5% 50V		C733	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	
C657	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V (TRV87E)		C734	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	
C658	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V		C735	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V (TR918E/TRV87E)	
C659	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V (TRV87E)		C736	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V (TR918E/TRV87E)	
C660	1-162-928-11	CERAMIC CHIP 120PF 5% 50V (TRV87E)		C737	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V	
C661	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TRV87E)		C738	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C663	1-162-927-11	CERAMIC CHIP 100PF 5% 50V (TRV87E)		C739	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V (TR918E/TRV87E)	
C664	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V (TRV87E)		C740	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C665	1-162-919-11	CERAMIC CHIP 22PF 5% 50V (TRV87E)					
C667	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V					
C668	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V					
C669	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V (TR717E/TR918E/TRV67E/TRV87E)					
C671	1-126-246-11	ELECT CHIP 220uF 20% 4V					

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C741	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C802	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C742	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V	C803	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C743	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V (TR918E/TRV87E)	C804	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C744	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C805	1-162-638-11	CERAMIC CHIP	1uF 16V
C745	1-162-925-11	CERAMIC CHIP	68PF 5% 50V	C806	1-119-749-11	TANTAL. CHIP	33uF 20% 4V
C746	1-115-467-11	CERAMIC CHIP	0.22uF 10% 10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	C807	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C747	1-115-467-11	CERAMIC CHIP	0.22uF 10% 10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	C809	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C753	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TR918E/TRV87E)	C810	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C754	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V (TR918E/TRV87E)	C811	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C755	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V (TR918E/TRV87E)	C813	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C756	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V (TR918E/TRV87E)	C814	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C757	1-135-177-21	TANTALUM CHIP	1uF 20% 20V (TR918E/TRV87E)	C815	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C758	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V (TR918E/TRV87E)	C817	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C759	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TR918E/TRV87E)	C818	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C760	1-119-660-11	TANTAL. CHIP	4.7uF 20% 6.3V (TR918E/TRV87E)	C819	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V
C761	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TR918E/TRV87E)	C820	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V
C762	1-164-668-11	CERAMIC CHIP	510PF 5% 50V (TR918E/TRV87E)	C821	1-162-919-11	CERAMIC CHIP	22PF 5% 50V
C763	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TR918E/TRV87E)	C822	1-162-917-11	CERAMIC CHIP	15PF 5% 50V
C764	1-127-688-21	TANTAL. CHIP	10uF 20% 6.3V (TR918E/TRV87E)	C823	1-164-156-11	CERAMIC CHIP	1uF 25V
C765	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TR918E/TRV87E)	C824	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C766	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V (TR918E/TRV87E)	C825	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C767	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V (TR918E/TRV87E)	C826	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C768	1-162-913-11	CERAMIC CHIP	8PF 0.50PF 50V (TR918E/TRV87E)	C901	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C769	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V (TR918E/TRV87E)	C902	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C770	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V (TR918E/TRV87E)	C903	1-162-915-11	CERAMIC CHIP	10PF 0.5PF 50V
C771	1-162-921-11	CERAMIC CHIP	33PF 5% 50V (TR918E/TRV87E)	C904	1-162-915-11	CERAMIC CHIP	10PF 0.5PF 50V
C772	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V (TR918E/TRV87E)	C907	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C773	1-162-922-11	CERAMIC CHIP	39PF 5% 50V (TR918E/TRV87E)	C908	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C774	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V (TR918E/TRV87E)	C909	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C775	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V (TR918E/TRV87E)	C910	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V
C777	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TR918E/TRV87E)	C911	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C778	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TR918E/TRV87E)	C912	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C781	1-104-847-11	TANTAL. CHIP	22uF 20% 4V (TR918E/TRV87E)	C913	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C782	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V (TR918E/TRV87E)	C914	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C801	1-115-156-11	CERAMIC CHIP	1uF 10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	C915	1-164-156-11	CERAMIC CHIP	0.1uF 25V
				< CONNECTOR >			
CN101	1-766-346-21	CONNECTOR, FFC/FPC 16P		C971	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
CN151	1-766-644-21	CONNECTOR, FFC/FPC 8P (TR717E/TR918E/TRV57E/TRV67E/TRV87E)		C972	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
CN501	1-779-331-11	CONNECTOR, FFC/FPC 14P		C973	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V
CN551	1-691-362-11	CONNECTOR, FFC/FPC (ZIF) 24P		C974	1-107-826-91	CERAMIC CHIP	0.1uF 10% 16V
CN973	1-766-340-21	CONNECTOR, FFC/FPC 10P (TR717E/TR918E/TRV57E/TRV67E/TRV87E)					
CN971	1-766-352-21	CONNECTOR, FFC/FPC 22P					
CN972	1-766-350-21	CONNECTOR, FFC/FPC 20P					
CN973	1-774-635-21	CONNECTOR, FFC/FPC 10P (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)					
CN974	1-766-644-21	CONNECTOR, FFC/FPC 8P					
CN975	1-785-760-11	CONNECTOR, FFC/FPC (ZIF) 45P					
CN976	1-766-340-21	CONNECTOR, FFC/FPC 10P					
CN977	1-774-631-21	CONNECTOR, FFC/FPC 6P (TR918E/TRV87E)					
CN978	1-766-342-21	CONNECTOR, FFC/FPC 12P					
CN979	1-766-345-21	CONNECTOR, FFC/FPC 15P					
CN980	1-766-346-21	CONNECTOR, FFC/FPC 16P					

Ref. No.	Part No.	Description	Remarks
CN981	1-691-542-21	CONNECTOR, BOARD TO BOARD 48P	
CN982	1-766-346-21	CONNECTOR, FFC/FPC 16P	
< DIODE >			
D201	8-719-055-86	DIODE KV1470TL1-3	
D202	8-719-055-86	DIODE KV1470TL1-3	
D203	8-719-027-76	DIODE 1SS357-TPH3 (TR918E/TRV87E)	
D401	8-719-075-12	DIODE MA3XD21001S0	
D501	8-713-103-84	DIODE 1T379-01-T8A	
D502	8-719-073-01	DIODE MA111-TX (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)	
D551	8-719-073-01	DIODE MA111-(K8).S0	
D801	8-719-073-01	DIODE MA111-(K8).S0	
D802	8-719-073-01	DIODE MA111-(K8).S0	
D803	8-719-073-01	DIODE MA111-(K8).S0	
D804	8-719-073-01	DIODE MA111-(K8).S0	
D971	8-719-073-03	DIODE MA8082-(K8).S0 (TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
D972	8-719-062-16	DIODE 01ZA8.2(TPL3) (TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
D973	8-719-073-03	DIODE MA8082-(K8).S0 (TR918E/TRV87E)	
< FERRITE BEAD >			
FB101	1-414-228-11	INDUCTOR CHIP 0UH	
FB102	1-414-228-11	INDUCTOR CHIP 0UH	
FB201	1-414-760-21	FERRITE 0UH	
FB202	1-414-760-21	FERRITE 0UH (TR918E/TRV87E)	
FB203	1-414-760-21	FERRITE 0UH	
FB204	1-414-760-21	FERRITE 0UH	
FB205	1-414-760-21	FERRITE 0UH	
FB206	1-414-760-21	FERRITE 0UH (TR918E/TRV87E)	
FB207	1-414-760-21	FERRITE 0UH	
FB291	1-414-760-21	FERRITE 0UH	
FB501	1-414-760-21	FERRITE 0UH	
FB503	1-500-284-21	INDUCTOR CHIP 0UH	
FB504	1-414-760-21	FERRITE 0UH	
FB506	1-414-760-21	FERRITE 0UH (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)	
FB507	1-216-864-11	METAL CHIP 0 5% 1/16W (Note)	
FB508	1-216-864-11	METAL CHIP 0 5% 1/16W (Note)	
FB641	1-414-760-21	FERRITE 0UH	
FB801	1-414-760-21	FERRITE 0UH	
FB901	1-414-760-21	FERRITE 0UH	
< IC >			
IC101	8-752-093-69	IC CXA3265R-T4	
IC201	8-759-599-07	IC HG75C012FFL	
IC202	8-759-579-44	IC MB900097PFV-G-118-BND-ER (TR918E/TRV87E)	
IC202	8-759-647-02	IC BU2995-07FV-E2 (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
IC203	8-752-403-45	IC CXD1450R-T6 (TR918E/TRV87E)	

Ref. No.	Part No.	Description	Remarks
IC204	8-759-058-58	IC TC7S04FU(Te85R) (TRV87E:E,AUS,HK,CN,JE)	
IC205	8-759-058-60	IC TC7SU04FU(Te85R)	
IC291	8-759-536-93	IC M62371GP-600D	
IC401	8-759-640-85	IC CXA8096R-TBM	
IC501	8-752-386-72	IC CXD2444R-T4	
IC502	8-759-638-66	IC AD80013JSTRL	
IC551	8-759-637-96	IC uPD16877MA-6A5-E2	
IC552	8-759-444-87	IC NJM324V(Te2)	
IC641	8-759-599-37	IC AN2225FHQ-EB	
IC701	8-752-093-72	IC CXA3284R-T6 (TR918E/TRV87E)	
IC701	8-752-093-74	IC CXA3285R-T6 (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
IC751	8-759-566-96	IC AN2920FHQ-EB (TR918E/TRV87E)	
IC801	8-759-424-79	IC S-8423YFS-T2	
IC802	8-759-642-45	IC TL1596CPWR	
IC803	8-759-669-16	IC S579623PZ-TEB	
IC901	8-759-640-87	IC BR9016RFV-E2	
IC902	8-759-665-32	IC MB91192PFF-G-108-BND-ER	
< COIL >			
L101	1-414-406-41	INDUCTOR 220uH	
L102	1-412-952-11	INDUCTOR 12uH	
L103	1-469-526-91	INDUCTOR 22uH	
L104	1-414-406-41	INDUCTOR 220uH	
L203	1-469-525-91	INDUCTOR 10uH	
L204	1-469-525-91	INDUCTOR 10uH	
L205	1-469-525-91	INDUCTOR 10uH	
L206	1-469-525-91	INDUCTOR 10uH	
L208	1-469-525-91	INDUCTOR 10uH	
L209	1-412-945-11	INDUCTOR 3.3uH	
L291	1-469-525-91	INDUCTOR 10uH	
L501	1-414-398-11	INDUCTOR 10uH	
L551	1-414-398-11	INDUCTOR 10uH	
L552	1-469-525-91	INDUCTOR 10uH	
L553	1-469-525-91	INDUCTOR 10uH	
L641	1-469-525-91	INDUCTOR 10uH	
L642	1-469-525-91	INDUCTOR 10uH	
L643	1-412-937-11	INDUCTOR 0.68uH (TRV87E)	
L644	1-469-525-91	INDUCTOR 10uH	
L751	1-412-948-11	INDUCTOR 5.6uH (TR918E/TRV87E)	
L752	1-412-957-11	INDUCTOR 33uH (TR918E/TRV87E)	
L753	1-412-957-11	INDUCTOR 33uH (TR918E/TRV87E)	
L754	1-469-525-91	INDUCTOR 10uH (TR918E/TRV87E)	
< TRANSISTOR >			
Q101	8-729-047-19	TRANSISTOR 2SA1965-S-TL	
Q102	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q103	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q104	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q105	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q106	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q112	8-729-037-61	TRANSISTOR RN2104F(TPL3)	
Q113	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q203	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q204	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	

Note : Resistors are mounted to the location where FB507,FB508 are printed.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
Q205	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		R127	1-216-853-11	METAL CHIP 470K	5% 1/16W
Q206	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		R128	1-216-853-11	METAL CHIP 470K	5% 1/16W
Q208	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R133	1-216-839-11	METAL CHIP 33K	5% 1/16W
Q211	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R135	1-216-833-91	RES-CHIP 10K	5% 1/16W
Q213	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (TR918E/TRV87E)		R155	1-216-864-11	METAL CHIP 0	5% 1/16W
Q214	8-729-042-29	TRANSISTOR RN1104F(TPL3) (TRV87E)		R201	1-216-864-11	METAL CHIP 0	5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
Q401	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R202	1-216-864-11	METAL CHIP 0	5% 1/16W (TR918E/TRV87E)
Q551	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R203	1-216-295-91	SHORT 0	
Q552	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R204	1-216-833-91	RES-CHIP 10K	5% 1/16W
Q553	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)		R205	1-216-845-11	METAL CHIP 100K	5% 1/16W
Q554	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)		R206	1-216-864-11	METAL CHIP 0	5% 1/16W
Q701	8-729-045-78	TRANSISTOR RN1110F(TPL3) (TRV87E)		R208	1-216-833-91	RES-CHIP 10K	5% 1/16W
Q703	8-729-045-78	TRANSISTOR RN1110F(TPL3) (TR918E/TRV87E)		R209	1-216-822-11	METAL CHIP 1.2K	5% 1/16W
Q704	8-729-045-78	TRANSISTOR RN1110F(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		R210	1-216-825-11	METAL CHIP 2.2K	5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q706	8-729-045-78	TRANSISTOR RN1110F(TPL3)		R211	1-216-825-11	METAL CHIP 2.2K	5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q707	8-729-037-63	TRANSISTOR UN9115J-(K8).SO		R212	1-216-825-11	METAL CHIP 2.2K	5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q712	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		R214	1-216-825-11	METAL CHIP 2.2K	5% 1/16W
Q713	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		R222	1-216-864-11	METAL CHIP 0	5% 1/16W (TR918E/TRV87E)
Q801	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		R223	1-216-864-11	METAL CHIP 0	5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
Q802	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3) (TR918E/TRV87E)		R224	1-216-830-11	METAL CHIP 5.6K	5% 1/16W
Q803	8-729-042-29	TRANSISTOR RN1104F(TPL3)		R225	1-216-821-11	METAL CHIP 1K	5% 1/16W
Q804	8-729-041-43	TRANSISTOR HN1L02FU(TE85R)		R226	1-216-831-11	METAL CHIP 6.8K	5% 1/16W
Q805	8-729-042-29	TRANSISTOR RN1104F(TPL3) (TR918E/TRV87E)		R228	1-216-817-11	METAL CHIP 470	5% 1/16W
Q806	8-729-042-58	TRANSISTOR RN2102F(TPL3)		R229	1-216-809-11	METAL CHIP 100	5% 1/16W
Q974	8-729-042-29	TRANSISTOR RN1104F(TPL3) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		R230	1-216-840-11	METAL CHIP 39K	5% 1/16W
Q975	8-729-041-23	TRANSISTOR NDS356AP (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)		R231	1-216-820-11	METAL CHIP 820	5% 1/16W
< RESISTOR >				R232	1-216-827-11	METAL CHIP 3.3K	5% 1/16W
R101	1-216-804-11	METAL CHIP 39	5% 1/16W	R233	1-216-832-11	METAL CHIP 8.2K	5% 1/16W
R102	1-216-818-11	METAL CHIP 560	5% 1/16W	R234	1-216-834-11	METAL CHIP 12K	5% 1/16W
R103	1-216-864-11	METAL CHIP 0	5% 1/16W	R235	1-216-817-11	METAL CHIP 470	5% 1/16W
R104	1-216-864-11	METAL CHIP 0	5% 1/16W	R236	1-216-813-11	METAL CHIP 220	5% 1/16W
R105	1-216-809-11	METAL CHIP 100	5% 1/16W	R237	1-216-830-11	METAL CHIP 5.6K	5% 1/16W
R106	1-216-838-11	METAL CHIP 27K	5% 1/16W	R238	1-216-834-11	METAL CHIP 12K	5% 1/16W
R107	1-216-838-11	METAL CHIP 27K	5% 1/16W	R239	1-216-814-11	METAL CHIP 270	5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R108	1-216-813-11	METAL CHIP 220	5% 1/16W	R240	1-216-814-11	METAL CHIP 270	5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R109	1-216-813-11	METAL CHIP 220	5% 1/16W	R241	1-216-834-11	METAL CHIP 12K	5% 1/16W
R110	1-216-825-11	METAL CHIP 2.2K	5% 1/16W	R242	1-216-834-11	METAL CHIP 12K	5% 1/16W
R111	1-216-829-11	METAL CHIP 4.7K	5% 1/16W	R243	1-216-814-11	METAL CHIP 270	5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R112	1-216-814-11	METAL CHIP 270	5% 1/16W	R245	1-216-834-11	METAL CHIP 12K	5% 1/16W
R113	1-216-813-11	METAL CHIP 220	5% 1/16W	R246	1-216-833-91	RES-CHIP 10K	5% 1/16W
R114	1-216-826-11	METAL CHIP 2.7K	5% 1/16W	R247	1-216-817-11	METAL CHIP 470	5% 1/16W
R115	1-216-826-11	METAL CHIP 2.7K	5% 1/16W	R249	1-216-834-11	METAL CHIP 12K	5% 1/16W
R116	1-216-837-11	METAL CHIP 22K	5% 1/16W	R250	1-216-857-11	METAL CHIP 1M	5% 1/16W
R117	1-216-839-11	METAL CHIP 33K	5% 1/16W	R252	1-216-835-11	METAL CHIP 15K	5% 1/16W
R120	1-218-899-11	METAL CHIP 150K	0.5% 1/16W	R253	1-216-835-11	METAL CHIP 15K	5% 1/16W
R121	1-216-837-11	METAL CHIP 22K	5% 1/16W	R254	1-216-864-11	METAL CHIP 0	5% 1/16W
R122	1-216-837-11	METAL CHIP 22K	5% 1/16W	R256	1-216-834-11	METAL CHIP 12K	5% 1/16W
				R257	1-216-817-11	METAL CHIP 470	5% 1/16W
				R258	1-216-821-11	METAL CHIP 1K	5% 1/16W
				R259	1-216-833-91	RES-CHIP 10K	5% 1/16W

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
R260	1-216-841-11	METAL CHIP	47K	5%	1/16W (TRV87E)	R502	1-216-864-11	METAL CHIP	0	5%	1/16W
R261	1-216-864-11	METAL CHIP	0	5%	1/16W (TR918E/TRV87E)	R503	1-216-845-11	METAL CHIP	100K	5%	1/16W
R262	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	R504	1-216-814-11	METAL CHIP	270	5%	1/16W
R263	1-216-841-11	METAL CHIP	47K	5%	1/16W (TRV87E)	R505	1-216-809-11	METAL CHIP	100	5%	1/16W
R264	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	R506	1-216-812-11	METAL CHIP	180	5%	1/16W
R265	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (TR918E/TRV87E)	R509	1-216-857-11	METAL CHIP	1M	5%	1/16W
R266	1-216-841-11	METAL CHIP	47K	5%	1/16W (TR918E/TRV87E)	R512	1-216-853-11	METAL CHIP	470K	5%	1/16W
R271	1-216-864-11	METAL CHIP	0	5%	1/16W (TR918E/TRV87E)	R515	1-216-841-11	METAL CHIP	47K	5%	1/16W
R273	1-216-857-11	METAL CHIP	1M	5%	1/16W (TRV87E)	R516	1-216-841-11	METAL CHIP	47K	5%	1/16W
R274	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	R517	1-216-841-11	METAL CHIP	47K	5%	1/16W
R276	1-216-864-11	METAL CHIP	0	5%	1/16W	R518	1-216-864-11	METAL CHIP	0	5%	1/16W (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)
R278	1-216-864-11	METAL CHIP	0	5%	1/16W	R519	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
R279	1-216-864-11	METAL CHIP	0	5%	1/16W	R551	1-216-841-11	METAL CHIP	47K	5%	1/16W
R280	1-216-864-11	METAL CHIP	0	5%	1/16W	R552	1-216-821-11	METAL CHIP	1K	5%	1/16W
R281	1-216-821-11	METAL CHIP	1K	5%	1/16W	R553	1-216-295-91	SHORT	0		
R283	1-216-864-11	METAL CHIP	0	5%	1/16W	R555	1-216-843-11	METAL CHIP	68K	5%	1/16W
R401	1-216-841-11	METAL CHIP	47K	5%	1/16W	R556	1-216-821-11	METAL CHIP	1K	5%	1/16W
R402	1-216-851-11	METAL CHIP	330K	5%	1/16W	R557	1-216-843-11	METAL CHIP	68K	5%	1/16W
R403	1-216-845-11	METAL CHIP	100K	5%	1/16W	R558	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R404	1-216-845-11	METAL CHIP	100K	5%	1/16W	R559	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R405	1-216-845-11	METAL CHIP	100K	5%	1/16W	R560	1-216-797-11	METAL CHIP	10	5%	1/16W
R406	1-216-845-11	METAL CHIP	100K	5%	1/16W	R561	1-216-857-11	METAL CHIP	1M	5%	1/16W
R407	1-216-817-11	METAL CHIP	470	5%	1/16W	R562	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R408	1-217-671-11	METAL CHIP	1	5%	1/10W	R563	1-216-833-91	RES-CHIP	10K	5%	1/16W
R409	1-217-671-11	METAL CHIP	1	5%	1/10W	R564	1-216-849-11	METAL CHIP	220K	5%	1/16W
R410	1-217-671-11	METAL CHIP	1	5%	1/10W	R565	1-216-853-11	METAL CHIP	470K	5%	1/16W
R411	1-216-023-00	METAL CHIP	82	5%	1/10W	R566	1-216-853-11	METAL CHIP	470K	5%	1/16W
R413	1-216-864-11	METAL CHIP	0	5%	1/16W	R567	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R414	1-216-817-11	METAL CHIP	470	5%	1/16W	R568	1-216-835-11	METAL CHIP	15K	5%	1/16W
R416	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R569	1-216-837-11	METAL CHIP	22K	5%	1/16W
R423	1-216-833-91	RES-CHIP	10K	5%	1/16W	R570	1-216-853-11	METAL CHIP	470K	5%	1/16W
R424	1-216-841-11	METAL CHIP	47K	5%	1/16W	R571	1-216-821-11	METAL CHIP	1K	5%	1/16W
R425	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R572	1-216-821-11	METAL CHIP	1K	5%	1/16W
R426	1-216-845-11	METAL CHIP	100K	5%	1/16W	R573	1-216-815-11	METAL CHIP	330	5%	1/16W
R427	1-216-833-91	RES-CHIP	10K	5%	1/16W	R574	1-216-837-11	METAL CHIP	22K	5%	1/16W
R428	1-217-671-11	METAL CHIP	1	5%	1/10W	R575	1-216-821-11	METAL CHIP	1K	5%	1/16W
R429	1-217-671-11	METAL CHIP	1	5%	1/10W	R576	1-216-833-91	RES-CHIP	10K	5%	1/16W
R430	1-216-841-11	METAL CHIP	47K	5%	1/16W	R577	1-216-841-11	METAL CHIP	47K	5%	1/16W
R431	1-216-864-11	METAL CHIP	0	5%	1/16W	R644	1-216-804-11	METAL CHIP	39	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R432	1-216-841-11	METAL CHIP	47K	5%	1/16W	R645	1-216-803-11	METAL CHIP	33	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R433	1-216-864-11	METAL CHIP	0	5%	1/16W	R646	1-216-804-11	METAL CHIP	39	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R434	1-216-833-91	RES-CHIP	10K	5%	1/16W	R647	1-216-803-11	METAL CHIP	33	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R435	1-216-833-91	RES-CHIP	10K	5%	1/16W	R648	1-216-804-11	METAL CHIP	39	5%	1/16W
R436	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R649	1-216-803-11	METAL CHIP	33	5%	1/16W
R501	1-216-864-11	METAL CHIP	0	5%	1/16W	R650	1-218-847-11	METAL CHIP	1K	0.5%	1/16W
						R651	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
						R652	1-218-876-11	METAL CHIP	16K	0.5%	1/16W
						R653	1-216-837-11	METAL CHIP	22K	5%	1/16W (TRV87E)
						R655	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R656	1-216-821-11	METAL CHIP	1K	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R657	1-216-821-11	METAL CHIP	1K 5% 1/16W (TR717E/TR918E/TRV67E/TRV87E)	R765	1-216-821-11	METAL CHIP	1K 5% 1/16W (TR918E/TRV87E)
R658	1-216-821-11	METAL CHIP	1K 5% 1/16W	R766	1-216-864-11	METAL CHIP	0 5% 1/16W (TR918E/TRV87E)
R703	1-216-841-11	METAL CHIP	47K 5% 1/16W	R767	1-216-819-11	METAL CHIP	680 5% 1/16W (TR918E/TRV87E)
R704	1-216-833-91	RES-CHIP	10K 5% 1/16W	R768	1-216-847-11	METAL CHIP	150K 5% 1/16W (TR918E/TRV87E)
R705	1-216-809-11	METAL CHIP	100 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	R770	1-216-847-11	METAL CHIP	150K 5% 1/16W (TR918E/TRV87E)
R706	1-216-809-11	METAL CHIP	100 5% 1/16W (TRV87E)	R771	1-216-818-11	METAL CHIP	560 5% 1/16W (TR918E/TRV87E)
R707	1-216-841-11	METAL CHIP	47K 5% 1/16W (TR918E/TRV87E)	R772	1-216-831-11	METAL CHIP	6.8K 5% 1/16W (TR918E/TRV87E)
R708	1-216-833-91	RES-CHIP	10K 5% 1/16W (TR918E/TRV87E)	R773	1-216-817-11	METAL CHIP	470 5% 1/16W (TR918E/TRV87E)
R710	1-216-836-11	METAL CHIP	18K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	R774	1-216-840-11	METAL CHIP	39K 5% 1/16W (TR918E/TRV87E)
R711	1-216-849-11	METAL CHIP	220K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	R775	1-216-864-11	METAL CHIP	0 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R712	1-216-847-11	METAL CHIP	150K 5% 1/16W	R777	1-216-864-11	METAL CHIP	0 5% 1/16W (TR918E/TRV87E)
R713	1-216-841-11	METAL CHIP	47K 5% 1/16W	R801	1-216-841-11	METAL CHIP	47K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R714	1-216-853-11	METAL CHIP	470K 5% 1/16W	R802	1-216-829-11	METAL CHIP	4.7K 5% 1/16W (TR918E/TRV87E)
R715	1-216-853-11	METAL CHIP	470K 5% 1/16W (TR918E/TRV87E)	R803	1-216-845-11	METAL CHIP	100K 5% 1/16W
R716	1-216-864-11	METAL CHIP	0 5% 1/16W	R805	1-216-827-11	METAL CHIP	3.3K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
R717	1-216-864-11	METAL CHIP	0 5% 1/16W (TR918E/TRV87E)	R806	1-216-821-11	METAL CHIP	1K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R719	1-216-864-11	METAL CHIP	0 5% 1/16W	R807	1-216-825-11	METAL CHIP	2.2K 5% 1/16W (TR918E/TRV87E)
R720	1-216-820-11	METAL CHIP	820 5% 1/16W	R808	1-216-853-11	METAL CHIP	470K 5% 1/16W
R721	1-216-821-11	METAL CHIP	1K 5% 1/16W	R809	1-216-821-11	METAL CHIP	1K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R722	1-216-821-11	METAL CHIP	1K 5% 1/16W (TR918E/TRV87E)	R810	1-216-821-11	METAL CHIP	1K 5% 1/16W (TR918E/TRV87E)
R723	1-216-864-11	METAL CHIP	0 5% 1/16W	R811	1-216-845-11	METAL CHIP	100K 5% 1/16W
R724	1-216-864-11	METAL CHIP	0 5% 1/16W (TR918E/TRV87E)	R813	1-216-853-11	METAL CHIP	470K 5% 1/16W
R725	1-216-833-91	RES-CHIP	10K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	R814	1-216-853-11	METAL CHIP	470K 5% 1/16W
R726	1-216-833-91	RES-CHIP	10K 5% 1/16W (TRV87E)	R815	1-216-853-11	METAL CHIP	470K 5% 1/16W
R728	1-216-841-11	METAL CHIP	47K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	R816	1-216-853-11	METAL CHIP	470K 5% 1/16W
R729	1-216-833-91	RES-CHIP	10K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	R817	1-216-853-11	METAL CHIP	470K 5% 1/16W
R730	1-216-833-91	RES-CHIP	10K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	R818	1-216-853-11	METAL CHIP	470K 5% 1/16W
R731	1-216-841-11	METAL CHIP	47K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	R819	1-216-853-11	METAL CHIP	470K 5% 1/16W
R755	1-216-836-11	METAL CHIP	18K 5% 1/16W (TR918E/TRV87E)	R820	1-216-845-11	METAL CHIP	100K 5% 1/16W
R756	1-216-829-11	METAL CHIP	4.7K 5% 1/16W (TR918E/TRV87E)	R821	1-216-853-11	METAL CHIP	470K 5% 1/16W
R757	1-216-829-11	METAL CHIP	4.7K 5% 1/16W (TR918E/TRV87E)	R822	1-216-841-11	METAL CHIP	47K 5% 1/16W
R760	1-216-835-11	METAL CHIP	15K 5% 1/16W (TR918E/TRV87E)	R823	1-216-833-91	RES-CHIP	10K 5% 1/16W
R761	1-216-857-11	METAL CHIP	1M 5% 1/16W (TR918E/TRV87E)	R824	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R763	1-218-879-11	METAL CHIP	22K 0.5% 1/16W (TR918E/TRV87E)	R825	1-216-821-11	METAL CHIP	1K 5% 1/16W
R764	1-216-815-11	METAL CHIP	330 5% 1/16W (TR918E/TRV87E)	R831	1-216-845-11	METAL CHIP	100K 5% 1/16W
				R832	1-216-857-11	METAL CHIP	1M 5% 1/16W
				R833	1-218-903-11	METAL CHIP	220K 0.5% 1/16W
				R834	1-218-903-11	METAL CHIP	220K 0.5% 1/16W
				R835	1-218-911-11	METAL CHIP	470K 0.5% 1/16W
				R836	1-218-911-11	METAL CHIP	470K 0.5% 1/16W

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R837	1-216-845-11	METAL CHIP	100K 5% 1/16W	R921	1-216-845-11	METAL CHIP	100K 5% 1/16W
R838	1-216-845-11	METAL CHIP	100K 5% 1/16W	R922	1-216-845-11	METAL CHIP	100K 5% 1/16W
R839	1-216-845-11	METAL CHIP	100K 5% 1/16W	R923	1-216-853-11	METAL CHIP	470K 5% 1/16W
R840	1-216-821-11	METAL CHIP	1K 5% 1/16W	R924	1-216-853-11	METAL CHIP	470K 5% 1/16W
R843	1-216-821-11	METAL CHIP	1K 5% 1/16W	R925	1-216-841-11	METAL CHIP	47K 5% 1/16W
R844	1-216-821-11	METAL CHIP	1K 5% 1/16W	R930	1-216-841-11	METAL CHIP	47K 5% 1/16W
R845	1-216-821-11	METAL CHIP	1K 5% 1/16W	R931	1-216-841-11	METAL CHIP	47K 5% 1/16W
R847	1-216-845-11	METAL CHIP	100K 5% 1/16W	R932	1-216-864-11	METAL CHIP	0 5% 1/16W
R848	1-216-821-11	METAL CHIP	1K 5% 1/16W	R933	1-216-864-11	METAL CHIP	0 5% 1/16W
R849	1-216-821-11	METAL CHIP	1K 5% 1/16W	R934	1-216-845-11	METAL CHIP	100K 5% 1/16W
R865	1-216-841-11	METAL CHIP	47K 5% 1/16W	R972	1-216-864-11	METAL CHIP	0 5% 1/16W (TR717E/TR918E/TRV57E/TRV67E/TRV87E)
R866	1-216-854-11	METAL CHIP	560K 5% 1/16W	R973	1-216-821-11	METAL CHIP	1K 5% 1/16W
R867	1-216-821-11	METAL CHIP	1K 5% 1/16W	R974	1-216-821-11	METAL CHIP	1K 5% 1/16W (TR918E/TRV87E)
R868	1-216-853-11	METAL CHIP	470K 5% 1/16W	R977	1-216-864-11	METAL CHIP	0 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
R869	1-216-853-11	METAL CHIP	470K 5% 1/16W	R978	1-216-864-11	METAL CHIP	0 5% 1/16W
R870	1-216-853-11	METAL CHIP	470K 5% 1/16W	R979	1-216-864-11	METAL CHIP	0 5% 1/16W
R871	1-216-857-11	METAL CHIP	1M 5% 1/16W	R980	1-216-821-11	METAL CHIP	1K 5% 1/16W
R872	1-216-845-11	METAL CHIP	100K 5% 1/16W	R981	1-216-864-11	METAL CHIP	0 5% 1/16W
R873	1-216-845-11	METAL CHIP	100K 5% 1/16W	R984	1-216-857-11	METAL CHIP	1M 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R874	1-216-821-11	METAL CHIP	1K 5% 1/16W	R985	1-216-845-11	METAL CHIP	100K 5% 1/16W (TR717E/TR918E/TRV67E/TRV87E)
R875	1-216-821-11	METAL CHIP	1K 5% 1/16W	R985	1-216-841-11	METAL CHIP	47K 5% 1/16W (TR617E)
R876	1-219-570-11	RES-CHIP	10M 5% 1/16W	R985	1-216-833-91	RES-CHIP	10K 5% 1/16W (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
R877	1-216-821-11	METAL CHIP	1K 5% 1/16W	R986	1-216-833-91	RES-CHIP	10K 5% 1/16W (TRV57E)
R878	1-216-845-11	METAL CHIP	100K 5% 1/16W	R986	1-216-837-11	METAL CHIP	22K 5% 1/16W (TR918E/TRV87E)
R879	1-216-853-11	METAL CHIP	470K 5% 1/16W	R986	1-216-841-11	METAL CHIP	47K 5% 1/16W (TR717E/TRV67E)
R880	1-216-853-11	METAL CHIP	470K 5% 1/16W	R986	1-216-845-11	METAL CHIP	100K 5% 1/16W (TR617E)
R881	1-216-853-11	METAL CHIP	470K 5% 1/16W	R987	1-216-857-11	METAL CHIP	1M 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R882	1-216-817-11	METAL CHIP	470 5% 1/16W	R988	1-216-841-11	METAL CHIP	47K 5% 1/16W (TRV57E)
R886	1-216-853-11	METAL CHIP	470K 5% 1/16W	R988	1-216-845-11	METAL CHIP	100K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV67E/TRV87E)
R887	1-216-853-11	METAL CHIP	470K 5% 1/16W	R988	1-216-837-11	METAL CHIP	22K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
R888	1-216-821-11	METAL CHIP	1K 5% 1/16W	R989	1-216-833-91	RES-CHIP	10K 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV67E/TRV87E)
R889	1-216-821-11	METAL CHIP	1K 5% 1/16W	R989	1-216-845-11	METAL CHIP	100K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/TRV57E)
R890	1-216-845-11	METAL CHIP	100K 5% 1/16W	R990	1-216-295-91	SHORT	0 (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
R891	1-216-845-11	METAL CHIP	100K 5% 1/16W	R992	1-216-864-11	METAL CHIP	0 5% 1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R892	1-216-833-91	RES-CHIP	10K 5% 1/16W	< VIBRATOR >			
R901	1-216-821-11	METAL CHIP	1K 5% 1/16W	X501	1-760-321-11	VIBRATOR, CRYSTAL (28.375MHz)	
R902	1-216-854-11	METAL CHIP	560K 5% 1/16W	X641	1-767-029-21	VIBRATOR, CRYSTAL (17.734475MHz)	(TRV87E)
R903	1-216-845-11	METAL CHIP	100K 5% 1/16W	X801	1-767-980-21	VIBRATOR, CERAMIC (20MHz)	
R904	1-216-845-11	METAL CHIP	100K 5% 1/16W	X802	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
R905	1-216-845-11	METAL CHIP	100K 5% 1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	X901	1-760-655-41	VIBRATOR, CRYSTAL (20MHz)	
R906	1-216-853-11	METAL CHIP	470K 5% 1/16W				
R907	1-216-845-11	METAL CHIP	100K 5% 1/16W				
R908	1-216-845-11	METAL CHIP	100K 5% 1/16W				
R909	1-216-845-11	METAL CHIP	100K 5% 1/16W				
R910	1-216-829-11	METAL CHIP	4.7K 5% 1/16W				
R911	1-216-825-11	METAL CHIP	2.2K 5% 1/16W				
R912	1-216-845-11	METAL CHIP	100K 5% 1/16W				
R913	1-216-829-11	METAL CHIP	4.7K 5% 1/16W				
R914	1-216-829-11	METAL CHIP	4.7K 5% 1/16W				
R915	1-216-864-11	METAL CHIP	0 5% 1/16W				
R916	1-216-825-11	METAL CHIP	2.2K 5% 1/16W				
R917	1-216-845-11	METAL CHIP	100K 5% 1/16W				
R918	1-216-833-91	RES-CHIP	10K 5% 1/16W				
R919	1-216-833-91	RES-CHIP	10K 5% 1/16W				
R920	1-216-841-11	METAL CHIP	47K 5% 1/16W				

Ref. No.	Part No.	Description	Remarks			
	A-7073-855-A	VF-129 (P) BOARD, COMPLETE	*****			
			(Ref.No.;3000Series)			
		< CAPACITOR >				
C901	1-107-854-11	TANTAL. CHIP	68uF	20%	6.3V	
C902	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C903	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V	
C904	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	
C905	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V	
C906	1-162-638-11	CERAMIC CHIP	1uF		16V	
C907	1-104-563-11	FILM CHIP	0.1uF	5%	16V	
C908	1-162-920-11	CERAMIC CHIP	27PF	5%	50V	
C909	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
△ C910	1-162-625-11	CERAMIC CHIP	0.0047uF	5%	50V	
△ C911	1-164-715-11	CERAMIC CHIP	0.0068uF	5%	50V	
C912	1-107-854-11	TANTAL. CHIP	68uF	20%	6.3V	
C913	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V	
C914	1-113-984-11	TANTAL. CHIP	1.5uF	20%	35V	
C915	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C916	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V	
		< CONNECTOR >				
* CN901	1-785-379-01	HOUSING, CONNECTOR				
* CN902	1-580-057-11	PIN, CONNECTOR (SMD) 4P				
		< DIODE >				
D901	8-719-951-21	DIODE PR1102W-TR				
D903	8-719-073-01	DIODE MA111-(K8).S0				
		< IC >				
IC901	8-759-196-14	IC BA7149F-E2				
		< COIL >				
L901	1-412-031-11	INDUCTOR CHIP	47uH			
L902	1-410-387-11	INDUCTOR CHIP	33uH			
△ L903	1-402-680-21	COIL, FERRITE (HLC)(K)				
		< TRANSISTOR >				
Q901	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
Q902	8-729-106-68	TRANSISTOR	2SD1615-T1GLGK			
Q903	8-729-216-31	TRANSISTOR	2SA1163G-TE85L			
Q904	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
		< RESISTOR >				
R901	1-216-817-11	METAL CHIP	470	5%	1/16W	
R902	1-216-817-11	METAL CHIP	470	5%	1/16W	
R903	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R904	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R905	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R906	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R907	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R908	1-216-852-11	METAL CHIP	390K	5%	1/16W	
R909	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R910	1-216-835-11	METAL CHIP	15K	5%	1/16W	

Ref. No.	Part No.	Description	Remarks			
R911	1-216-160-00	RES-CHIP	27	5%	1/8W	
R912	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R916	1-218-881-11	METAL CHIP	27K	0.5%	1/16W	
R917	1-218-893-11	METAL CHIP	82K	0.5%	1/16W	
R918	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R919	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R920	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R921	1-216-795-11	RES-CHIP	6.8	5%	1/16W	
R922	1-216-850-11	METAL CHIP	270K	5%	1/16W	
R923	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R924	1-216-862-11	RES-CHIP	2.7M	5%	1/16W	
R925	1-216-862-11	RES-CHIP	2.7M	5%	1/16W	
R926	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R927	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R928	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R929	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R930	1-216-791-11	METAL CHIP	3.3	5%	1/16W	
R931	1-217-671-11	METAL CHIP	1	5%	1/10W	
R932	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
< VARIABLE RESISTOR >						
RV903	1-238-852-11	RES, ADJ, CERMET 470				
RV904	1-238-095-11	RES, ADJ, CERMET 470K				
< TRANSFORMER >						
△ T901	1-453-124-11	TRANSFORMER ASSY, FLYBACK				
< FLAT CABLE >						
△ W901	1-540-019-21	SOCKET ASSY, CRT				
A-7074-169-A VL-28 (B0) BOARD, COMPLETE						
(TR617E/TR717E/TR918E)						

(Ref.No.;7000Series)						
< CAPACITOR >						
C151	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V	
C153	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
< CONNECTOR >						
CN151	1-766-644-21	CONNECTOR, FFC/FPC 8P				
< COIL >						
L151	1-416-344-11	INDUCTOR	10uH			
< TRANSISTOR >						
Q151	8-729-043-94	TRANSISTOR	CPH3106-PM-TL			
Q152	8-729-028-26	TRANSISTOR	2SK1829(TE85L)			
< RESISTOR >						
R151	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R152	1-216-864-11	METAL CHIP	0	5%	1/16W	
R153	1-216-813-11	METAL CHIP	220	5%	1/16W	
R154	1-216-821-11	METAL CHIP	1K	5%	1/16W	

Note : The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
	A-7074-130-A	VL-29 (VHXRI80) BOARD, COMPLETE (TRV57E/TRV67E/TRV87E) ***** (Ref.No.:7000Series)	
		< CAPACITOR >	
C151	1-115-566-11	CERAMIC CHIP 4.7uF 10% 10V	
C153	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		< CONNECTOR >	
CN151	1-766-644-21	CONNECTOR, FFC/FPC 8P	
		< COIL >	
L151	1-416-344-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q151	8-729-043-94	TRANSISTOR CPH3106-PM-TL	
Q152	8-729-028-26	TRANSISTOR 2SK1829(TE85L)	
		< RESISTOR >	
R151	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R152	1-216-864-11	METAL CHIP 0 5% 1/16W	
R153	1-216-813-11	METAL CHIP 220 5% 1/16W	
R154	1-216-821-11	METAL CHIP 1K 5% 1/16W	
		MISCELLANEOUS *****	
1	1-517-857-11	LIGHT, VIDEO (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
13	1-694-384-11	TERMINAL BOARD, BATTERY	
15	1-672-663-21	FP-49 FLEXIBLE BOARD (TR918E/TRV87E)	
21	1-467-574-21	REMOTE COMMANDER (RMT-708) (TR427E/TR617E/TR717E/TR918E/TRV47E/ TRV48E/TRV57E/TRV67E/TRV87E)	
23	1-672-670-11	FP-43 FLEXIBLE BOARD	
51	1-475-621-11	SWITCH BLOCK, CONTROL (MR-8500)	
55	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
58	1-672-668-21	FP-62 FLEXIBLE BOARD (TRV87E)	
101	1-475-621-11	SWITCH BLOCK, CONTROL (MR-8500)	
104	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
108	1-803-844-81	DISPLAY, PANEL, LIQUID CRYSTAL (TR317E/TR417E/TR427E/TR617E/TR717E)	
108	A-7094-150-A	INDICATION LCD BLOCK ASSY (TR918E)	
117	1-672-668-21	FP-62 FLEXIBLE BOARD (TR918E)	
214	1-418-758-21	SWITCH BLOCK, CONTROL (SS-9700)	
217	1-676-298-11	FP-150 FLEXIBLE BOARD	
221	1-418-760-11	SWITCH BLOCK, CONTROL (FK-8500) (TRV87E:E,HK,AUS,CN,JE)	
221	1-418-760-21	SWITCH BLOCK, CONTROL (FK-8500) (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
221	1-418-760-41	SWITCH BLOCK, CONTROL (FK-8500) (TR918E/TRV87E:AEP,EE,NE,RU,UK)	
225	1-672-673-11	FP-46 FLEXIBLE BOARD (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
227	1-676-296-11	FP-147 FLEXIBLE BOARD	

Ref. No.	Part No.	Description	Remarks
230	1-672-671-11	FP-44 FLEXIBLE BOARD (TR617E/TR717E/TR918E,TRV37E/TRV47E/ TRV48E/TRV57E/TRV67E/TRV87E)	
230	1-676-297-11	FP-149 FLEXIBLE BOARD (TR317E/TR417E/TR427E)	
262	1-792-454-11	CABLE, FLEXIBLE FLAT (FFC-289)	
267	1-758-084-21	FILTER BLOCK, OPTICAL (TR317E/TR417E/TR427E/TR918E/ TRV37E/TRV47E/TRV48E/TRV87E)	
267	1-758-133-21	FILTER BLOCK, OPTICAL (TR617E/TR717E/TRV57E/TRV67E)	
269	8-848-729-01	DEVICE, LENS LSV-630A	
302	1-676-300-11	FP-152 FLEXIBLE BOARD	
304	1-960-161-11	HARNESS (DP-78)	
310	1-803-844-81	DISPLAY PANEL, LIQUID CRYSTAL (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
310	A-7094-150-A	INDICATION LCD BLOCK ASSY (TR918E)	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
762	1-657-786-13	FP-221 FLEXIBLE BOARD	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
D001	8-719-988-42	DIODE GL453	
IC201	A-7031-043-A	CCD BLOCK ASSY (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)	
IC201	A-7031-046-A	CCD BLOCK ASSY (TR918E)	
IC201	A-7031-049-A	CCD BLOCK ASSY (TR617E/TR717E/TRV57E/TRV67E)	
IC201	A-7031-060-A	CCD BLOCK ASSY (TRV87E)	
LCD901	1-803-859-21	INDICATOR MODULE LIQUID CRYSTAL (SERVICE)	
△ LED901	1-517-858-11	LIGHT, BACK	
M901	A-7048-899-A	DRUM BLOCK ASSY (DGH-0F1A-R) (PAL)	
M902	8-835-531-32	MOTOR, DC SCE-0601A/C-NP (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
M905	1-763-262-11	MOTOR, STEPPING F630	
M906	1-763-046-21	MOTOR, STEPPING Z600	
MIC901	1-542-312-11	MICROPHONE (R)	
MIC902	1-542-312-11	MICROPHONE (L) (TR918E/TRV87E)	
△ ND901	1-517-752-31	TUBE, FLUORESCENT, COLD CATHODE (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
S001	1-682-614-11	SWITCH, PUSH (3KEY) (Hi8 MP,ME/MP,REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	
S901	1-762-436-15	SWITCH (ENCODER), ROTARY	
S910	1-771-848-11	SWITCH, PUSH	
SP901	1-504-753-41	SPEAKER (2.8CM)	
△ V901	1-452-673-61	CRT ASSY (M01KXX90WB)	

Be sure to read "Precautions upon replacing CCD imager" on page 4-8 when changing the CCD imager.

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
		ACCESSORIES *****		3-868-322-21		MANUAL, INSTRUCTION (FRENCH/GERMAN) (TR317E:E)	
	1-467-574-21	REMOTE COMMANDER (RMT-708) (TR427E/TR617E/TR717E/TR918E/TRV47E/ TRV48E/TRV57E/TRV67E/TRV87E)		3-868-322-31		MANUAL, INSTRUCTION (ARABIC/PERSIAN) (TR317E:E)	
△	1-475-599-11	ADAPTOR, AC		3-868-322-41		MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (TR317E:CH)	
	1-569-007-11	ADAPTOR, CONVERSION (TRV47E:JE/TRV57E:JE/TRV67E:JE/TRV87E:JE)		3-868-322-51		MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (TR317E:HK)	
	1-569-008-21	ADAPTOR, CONVERSION 2P (TR317E:E,HK/TRV47E:E,HK/TRV57E:E,HK/ TRV67E:E,HK/TRV87E:E,HK)		3-868-324-11		MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TRV37E:EE,NE,RU,UK/TRV48E:EE,NE,RU,UK/ TRV57E:EE,NE,RU,UK/TRV67E:EE,NE,RU,UK/ TRV87E:EE,NE,RU,UK)	
	1-575-334-11	CORD, CONNECTION (A/V)(1.5m) (TR918E/TRV87E)		3-868-324-21		MANUAL, INSTRUCTION (SPANISH/PORTUGUESE) (TRV37E:AEP1/TRV48E:AEP1/ TRV57E:AEP1/TRV67E:AEP1/TRV87E:AEP1)	
△	1-690-827-11	CORD SET, POWER (TR417E:AEP,EE,NE,RU/TR427E:AEP,EE,NE,RU/TR617E/ TR717E:AEP,EE,NE,RU/TR918E:AEP,EE,NE,RU/ TRV37E:AEP,EE,NE,RU/TRV48E:AEP,EE,NE,RU/ TRV57E:AEP,EE,NE,RU/TRV67E:AEP,EE,NE,RU/ TRV87E:AEP,EE,NE,RU)		3-868-324-31		MANUAL, INSTRUCTION (GERMAN/ITALIAN) (TRV37E:AEP/TRV48E:AEP/TRV57E:AEP/ TRV67E:AEP/TRV87E:AEP)	
△	1-696-819-11	CORD, POWER (TR317E:AUS/TRV47E:AUS/TRV57E:AUS/ TRV67E:AUS/TRV87E:AUS)		3-868-324-41		MANUAL, INSTRUCTION (FRENCH/DUTCH) (TRV37E:AEP2/TRV48E:AEP2/TRV57E:AEP2/ TRV67E:AEP2/TRV87E:AEP2)	
	1-696-862-21	CORD, CONNECTION (A/V)(1.5m) (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)		3-868-324-51		MANUAL, INSTRUCTION (SWEDISH/POLISH) (TRV37E:EE,NE,RU/TRV48E:EE,NE,RU/TRV57E:EE,NE,RU/ TRV67E:EE,NE,RU/TRV87E:EE,NE,RU)	
△	1-769-608-11	CORD, POWER (TR317E:E/TRV47E:E/TRV57E:E/TRV67E:E/TRV87E:E)		3-868-325-11		MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TRV47E/TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CH,JE/ TRV87E:E,HK,AUS,CH,JE)	
	1-770-783-11	CONNECTOR, CONVERSION (21 PIN) (TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/ TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/ TRV87E:AEP,EE,NE,RU,UK)		3-868-325-21		MANUAL, INSTRUCTION (FRENCH/GERMAN) (TRV47E:E,JE/TRV57E:E,JE/TRV67E:E,JE/TRV87E:E,JE)	
△	1-775-843-52	CORD, POWER (WITH FILTER) (TR417E:UK/TR427E:UK/TR717E:UK/917:UK/TRV37E:UK/ TRV57E:UK/TRV67E:UK/TRV87E:UK)		3-868-325-31		MANUAL, INSTRUCTION (ARABIC/PERSIAN) (TRV47E:E/TRV57E:E/TRV67E:E/TRV87E:E)	
△	1-782-476-11	CORD, POWER (TR317E:CN/TRV47E:CN/TRV57E:CN/TRV67E:CN/TRV87E:CN)		3-868-325-41		MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (TRV47E:E,CN,JE/TRV57E:E,CN,JE/ TRV67E:E,CH,JE/TRV87E:E,CH,JE)	
△	1-783-374-11	CORD, POWER (TR317E:HK/TRV47E:HK/TRV57E:HK/TRV67E:HK/TRV87E:HK)		3-868-325-51		MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (TRV47E:HK/TRV57E:HK/ TRV67E:HK/TRV87E:HK)	
△	1-790-073-11	CORD, POWER 2P (TRV47E:JE/TRV57E:JE/TRV67E:JE/TRV87E:JE)		3-987-015-01		BELT(S), SHOULDER	
	3-868-321-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TR417E:EE,NE,RE,UK/TR427E:EE,NE,RU,UK/TR617E:EE,NE,RU/ TR717E:EE,NE,RU,UK/TR918E:EE,NE,RU)		A-7094-141-A		NP-330 BATTERY PACK	
	3-868-321-21	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE) (TR417E:AEP1/TR427E:AEP1/ TR617E:AEP1/TR717E:AEP1/TR918E:AEP1)					
	3-868-321-31	MANUAL, INSTRUCTION (GERMAN/ITALIAN) (TR417E:AEP/TR427E:AEP/TR617E:AEP/ TR717E:AEP,EE/TR918E:AEP)					
	3-868-321-41	MANUAL, INSTRUCTION (FRENCH/DUTCH) (TR417E:AEP2/TR427E:AEP2/TR617E:AEP2/ TR717E:AEP2/TR918E:AEP2)					
	3-868-321-51	MANUAL, INSTRUCTION (SWEDISH/POLISH) (TR427E:EE,NE,RU/TR617E:EE,NE,RU/TR918E:EE,NE,RU)					
	3-868-322-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TR317E:AUS,HK,CN)					

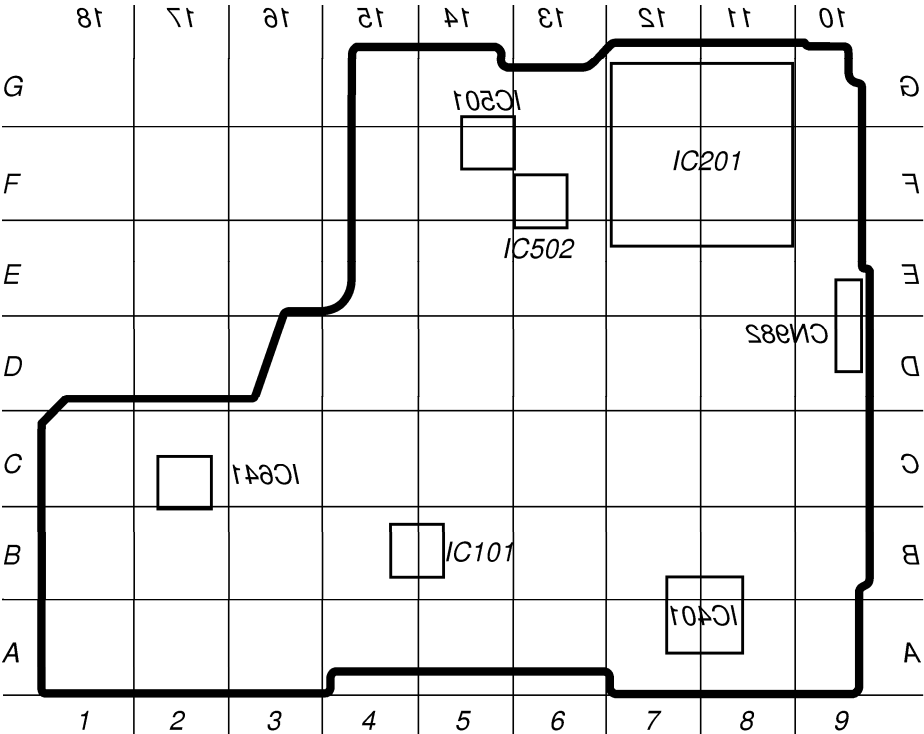
Note : The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

(PARTS REFERENCE SHEET)

You can find the parts position of location of mount locations applying to VC-234 board of a set.

VC-234 CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

SIDE A



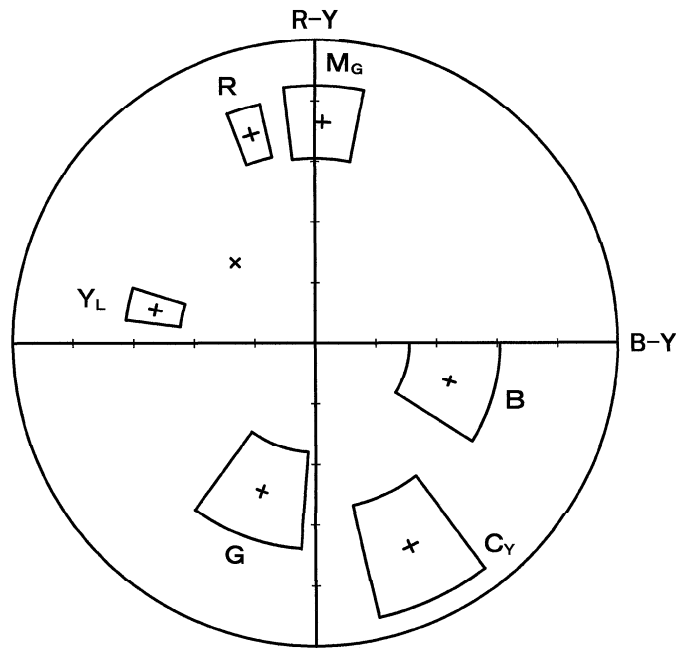
VC-234 CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

SIDE B



〈FOR CAMERA COLOR REPRODUCTION ADJUSTMENT〉

For 510H model and 760H TYPE S model

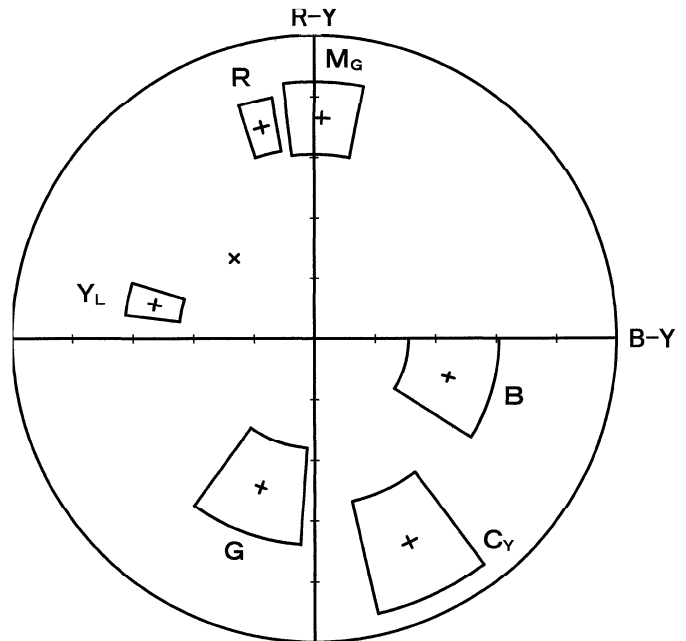


Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts referencesheets with a clear sheet for use.

*CCD-TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E*



For 760H TYPE P model



*CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E*



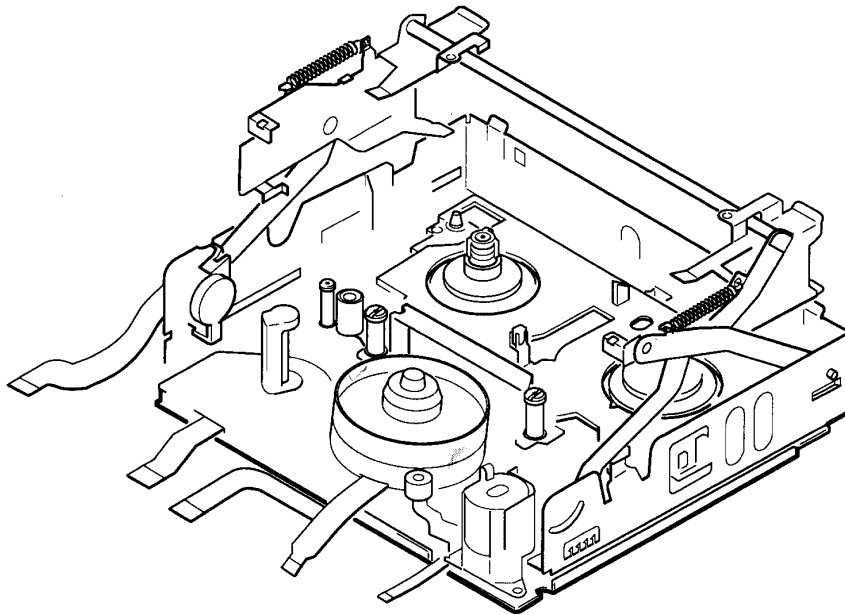
**CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E**

8mm Video MECHANICAL ADJUSTMENT MANUAL VII

B MECHANISM

Video8

Use this mechanical adjustment manual VII together with the service manual of the respective models.



8 MECHANISM DECK
SONY®

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For the mode selector operation, schematic diagram
and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.

To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.

The mechanisms are adjusted while set in the **USE** mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the **USE** mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

- 1) Set the mechanism to **USE** mode.
- 2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
- 3) Remove the claws **A** and **B** of the Damper Assy **①** from the chassis.
- 4) Remove the washer **②** from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.

- 5) Remove the shaft of the arm from the slot **C** of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
- 6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow **D**, and remove the arm shaft of the Cassette Compartment from the LS Chassis **④** near the Reel Tables. Remove the Cassette Compartment Assy **③** in the direction of the arrow **E**.

2. Precautions During Re-Assembling

- 1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
- 2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
- 3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

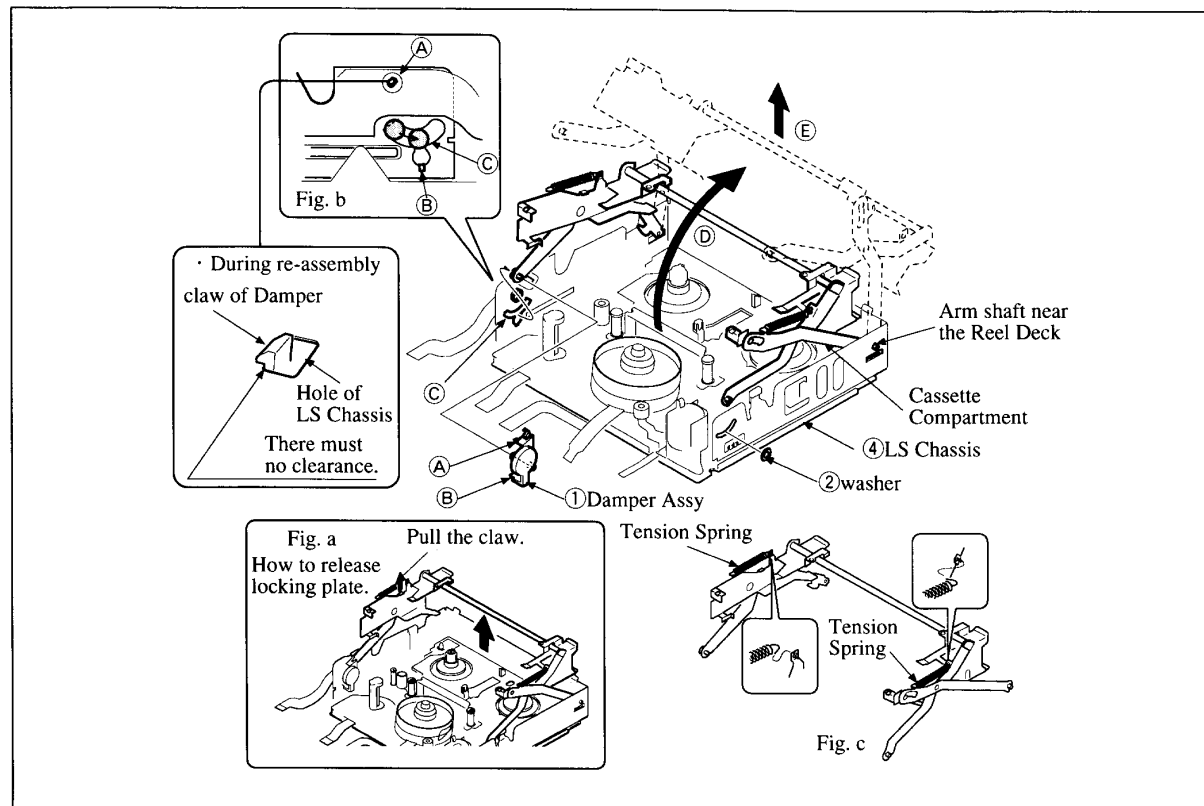


Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

- 1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
- 2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

Example of establishing the TEST mode: model CCD-TR420E/TR440E.

Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.

Select page: 7, address: 01, set data: 01 and press the PAUSE button.

After tape loading or other desired operations of mechanism are completed, be sure to perform the following:

Select page: F, address: 01, set data :00 and press the PAUSE button.

Select page: 6, address: 00, set data: 00 and press the PAUSE button.

- 3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

- 1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
- 2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
- 3) Set the RECORD switch to ON.

(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

- 1) Press the EJECT switch to ON.

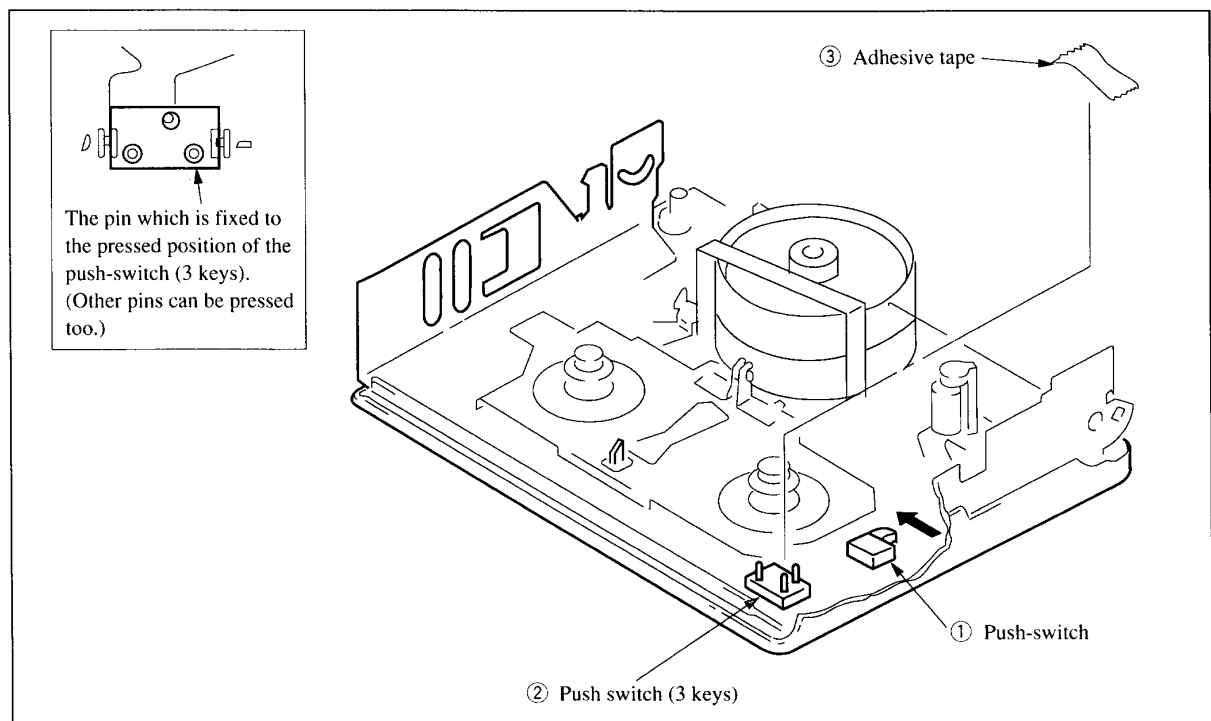


Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

- 1) Set the mechanism to **USE** mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

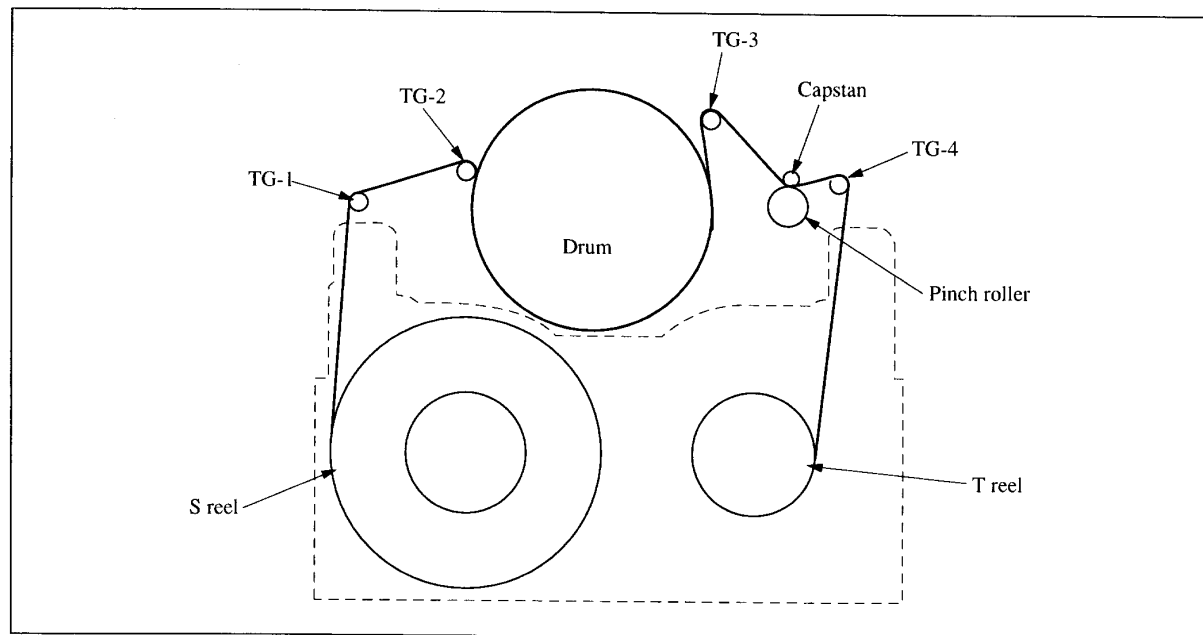


Fig. 3

2-3. Periodic Check Items

Maintenance and Inspection Points		Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Drive System	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	X-3945-401-1
Performance Check	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	
	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD } Torque Measurement RVS }	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)

Oil: Sony part No. 7-661-018-18

(Mitsubishi diamond oil hydro fluid NT-68)

- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

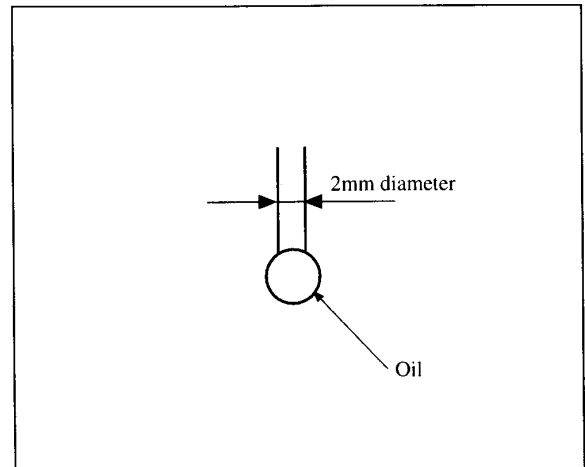


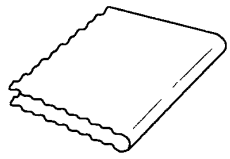
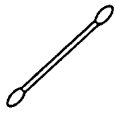
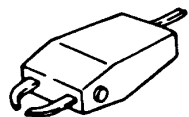
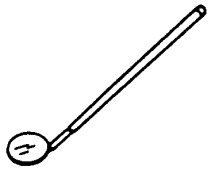
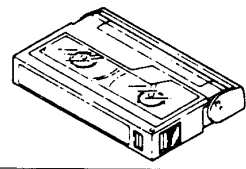
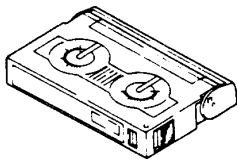
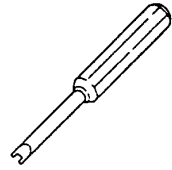
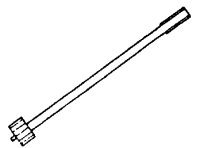
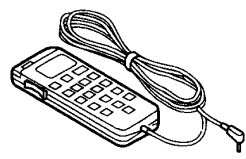
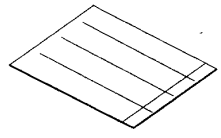
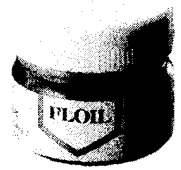
Fig. 4

2-4. Service Tool List

Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Cleaning piece	2-034-697-00	—	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		—	
J-4	Head demagnetizer	Commercially available	—	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	—	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	—	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	—	
J-10	Remote commander for adjustment	J-6082-053-B	—	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	—	
J-12	FLOIL Grease SG-941	7-662-001-39	—	
J-13	FLOIL Grease SG-055G	7-651-000-09	—	

Other equipment

- Oscilloscope
- Analog circuit tester (input impedance 20 k Ω)

J-1 	J-2 	J-3 	J-4 
J-5 	J-6 	J-7 	J-8 
J-9 	J-10 	J-11 	J-12 
J-13 			

3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

- 1) Remove the Torsion Spring ① from the cut-out ①A of the motor holder. Hook it to the claw ①B of the HC Arm.
- 2) Remove the HC Roller Block Assy in the direction shown by ①C.
- 3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

- 1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to ①A and ①D.
- 2) Align the block so that the cut-out ①E agrees with the rib ①F.

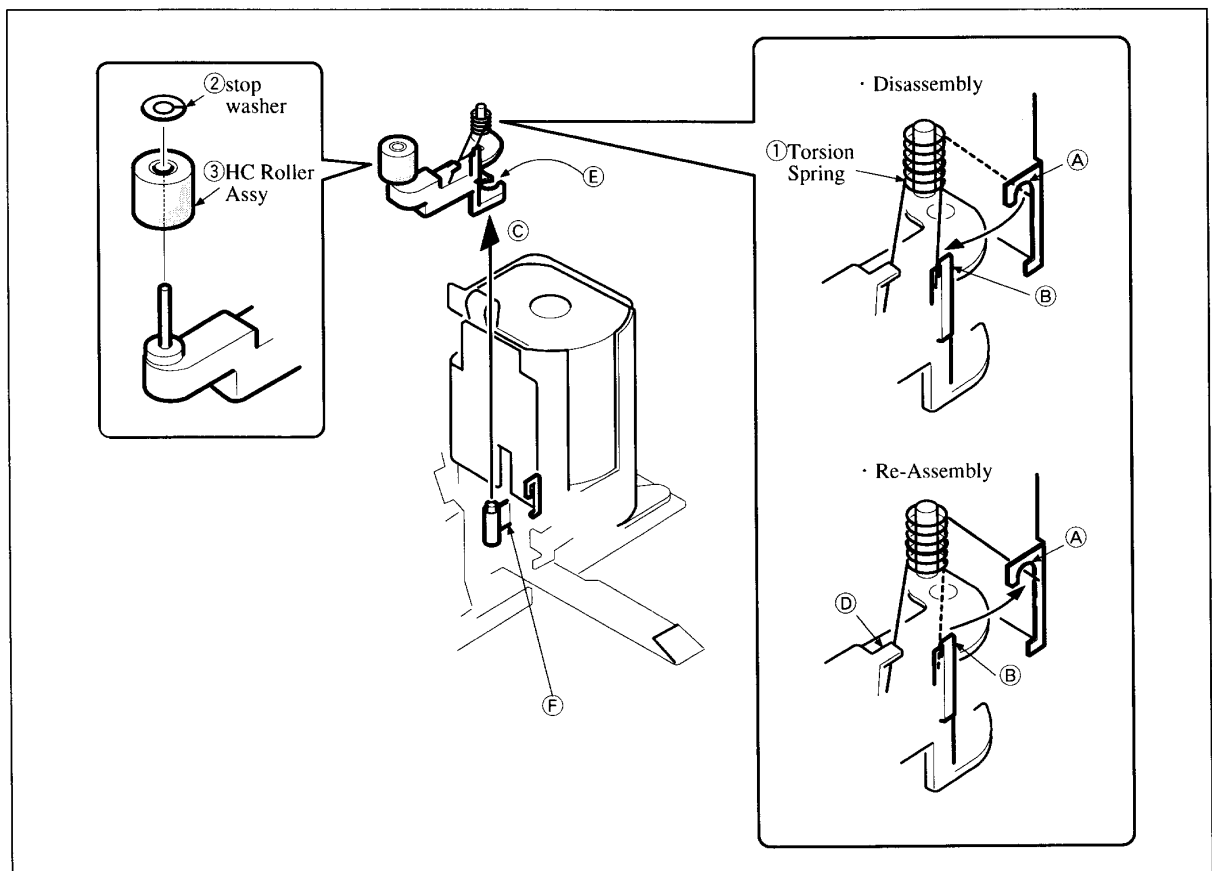


Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

- 1) Set the mechanism to **USE** mode.
- 2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions **A** and **B** of the drum assy.)

2. Precautions During Re-Assembly

- 1) Be careful not to touch the outer circumference of the drum. (Hold the portions **A** and **B** of the drum assy.)
- 2) When tightening the three screws (M 1.4), tighten them in the order **C**, then **D**, then **E**.
- 3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

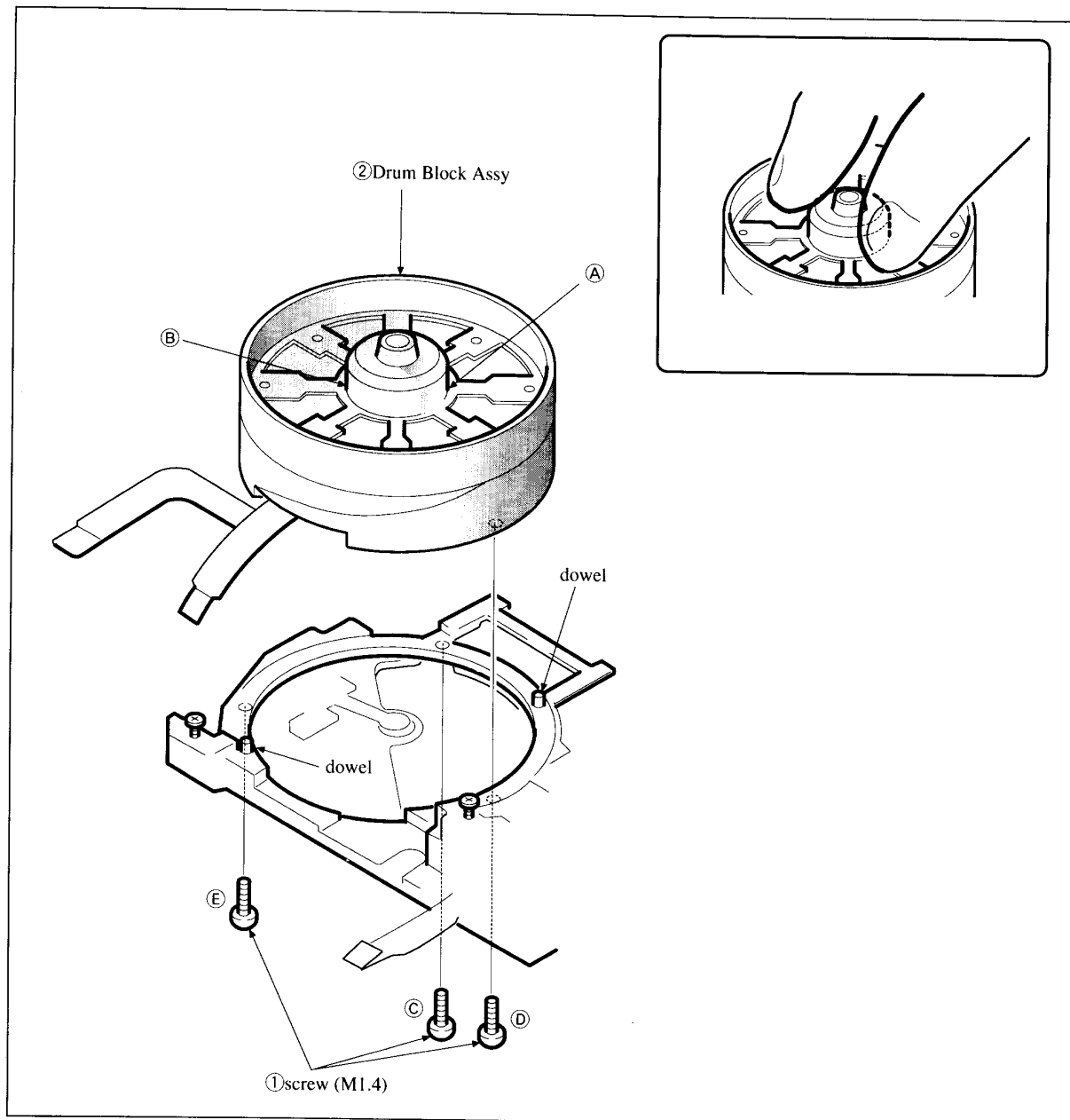


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

- 1) Remove the Drum Assy referring to section 3-2.
- 2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
- 3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

2. Precautions During Re-Assembly

- 1) Do not touch the spring portion of the Shaft Ground ④.
- 2) When tightening the three screws (M 1.4×2.5), tighten them in the order of ①, then ②, then ③.
- 3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

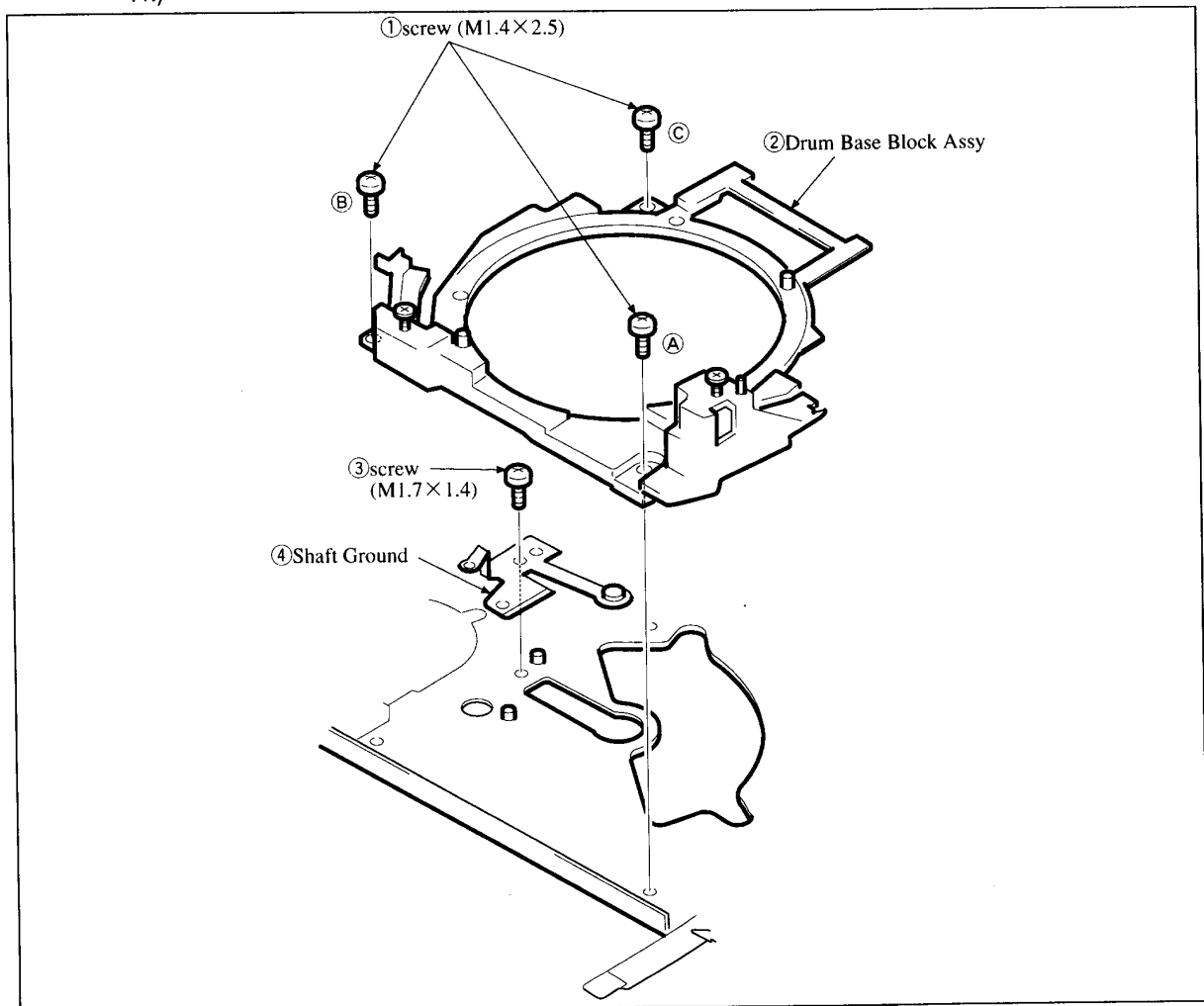


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
(Turn the flexible board 90° outside and remove it upward.)
- 3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
- 4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

- 1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
- 2) Hook the T-side claw on the guide.

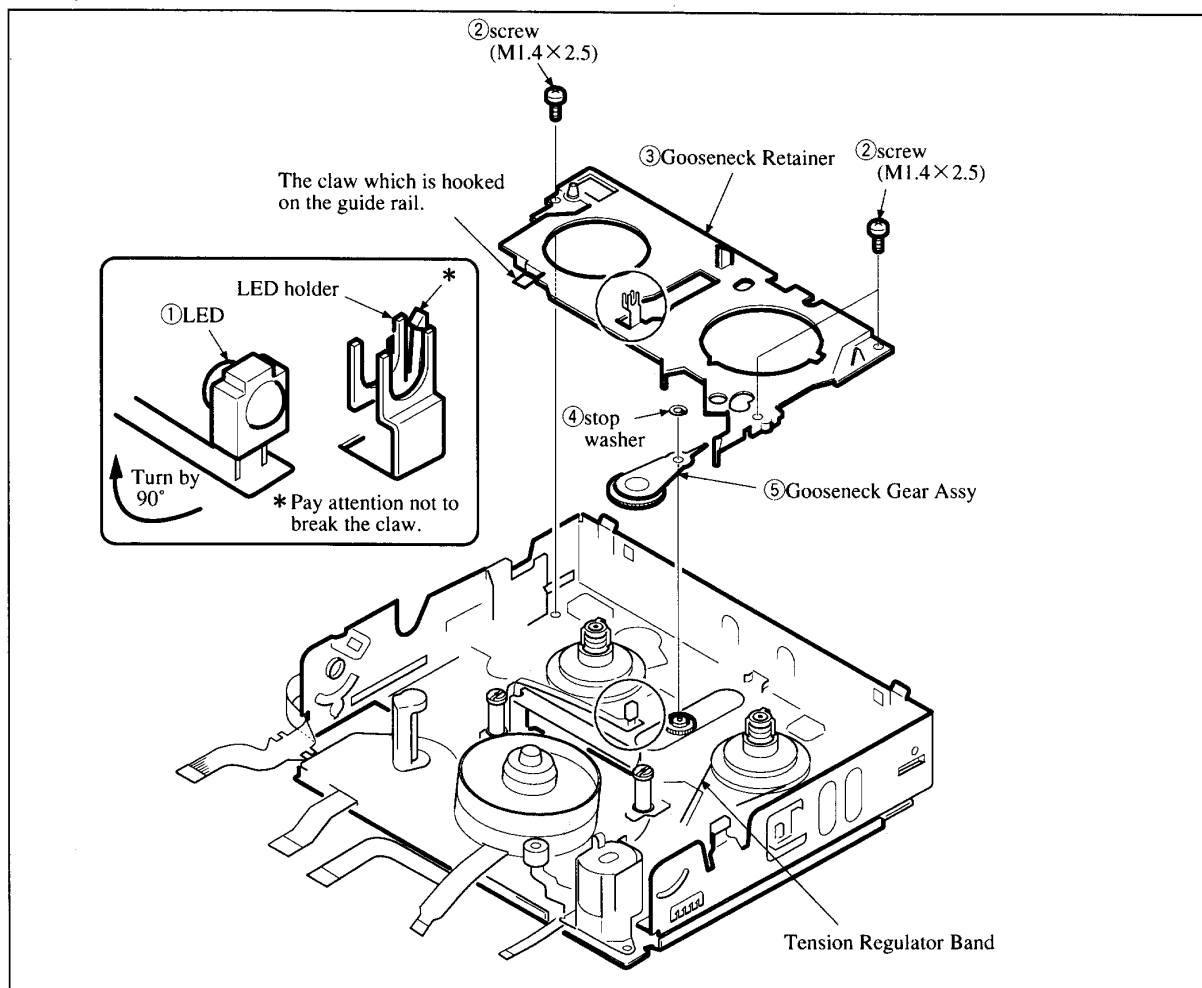


Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the FP-221 flexible board ① from the flexible board holder.
- 4) Remove the stop ring E1.5 ②.
- 5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow A.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

- 1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
- 2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
- 3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
- 4) Pay attention that the TG-1 Arm is not floated.

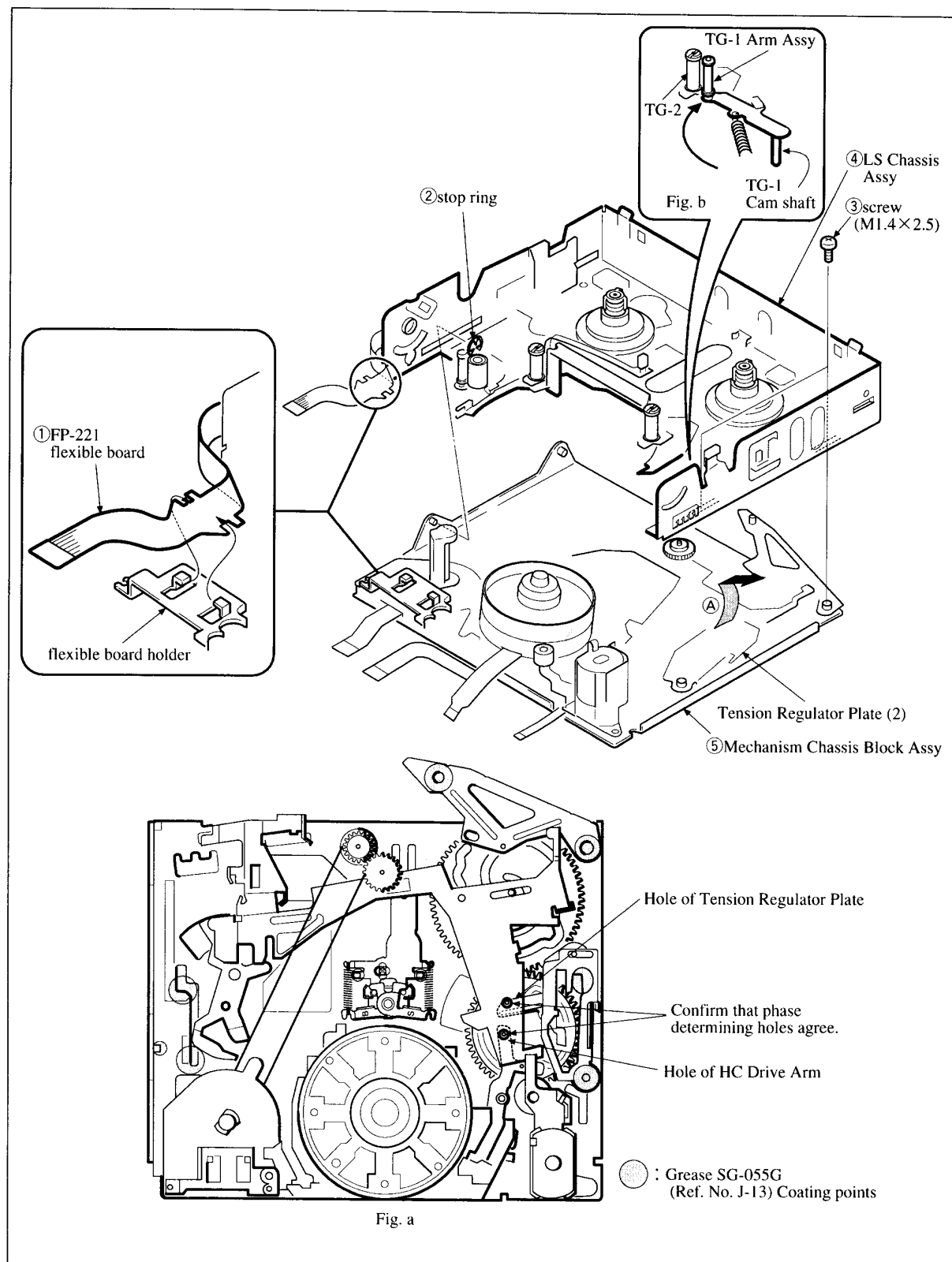


Fig. 9

• PARTS CONSTITUTING THE LS CHASSIS.

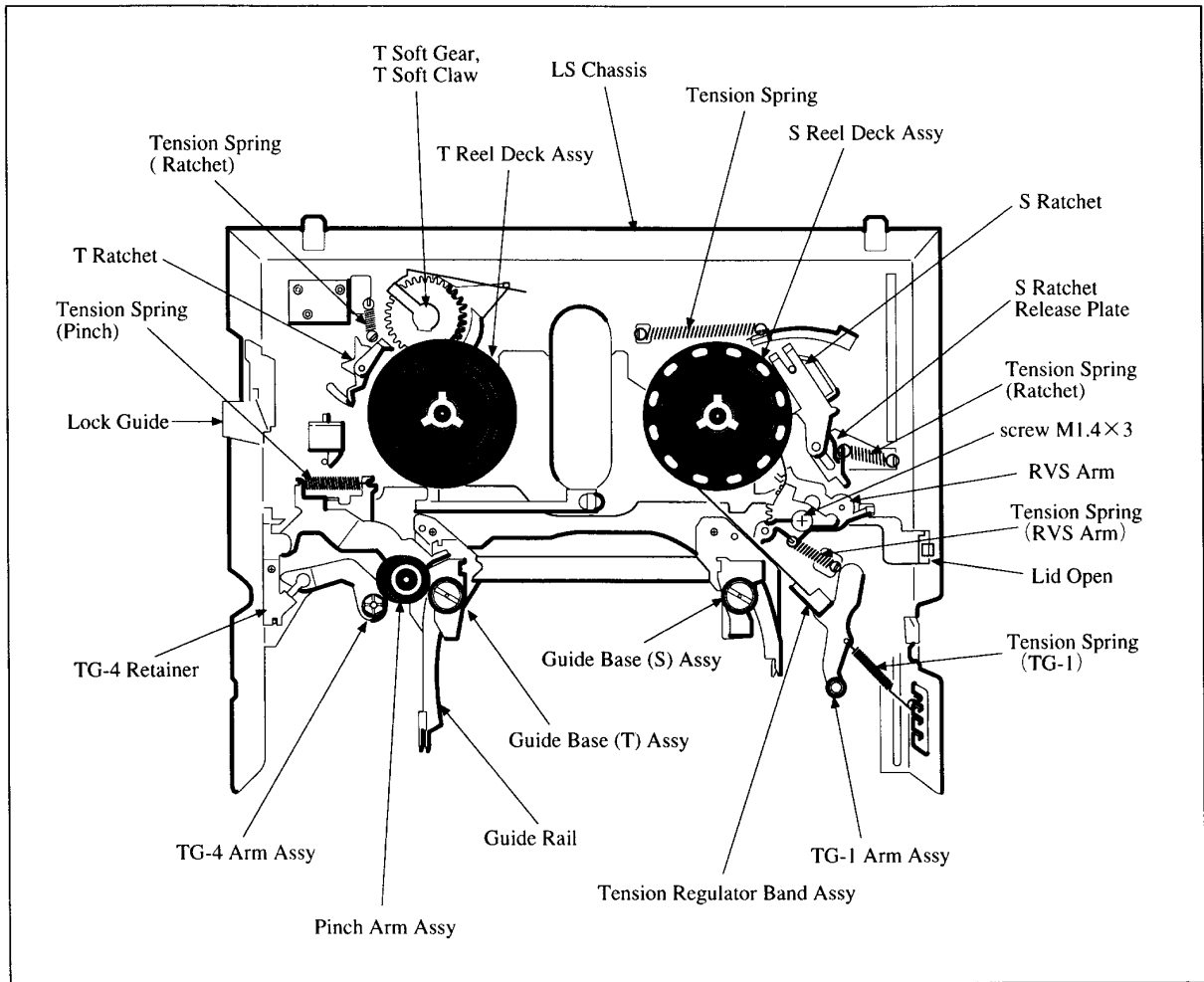


Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
- 4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow ④ and remove it.
- 5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow ⑤ and remove it.

2. Precautions During Re-Assembly

- 1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
- 2) Be careful not to deform the claw.

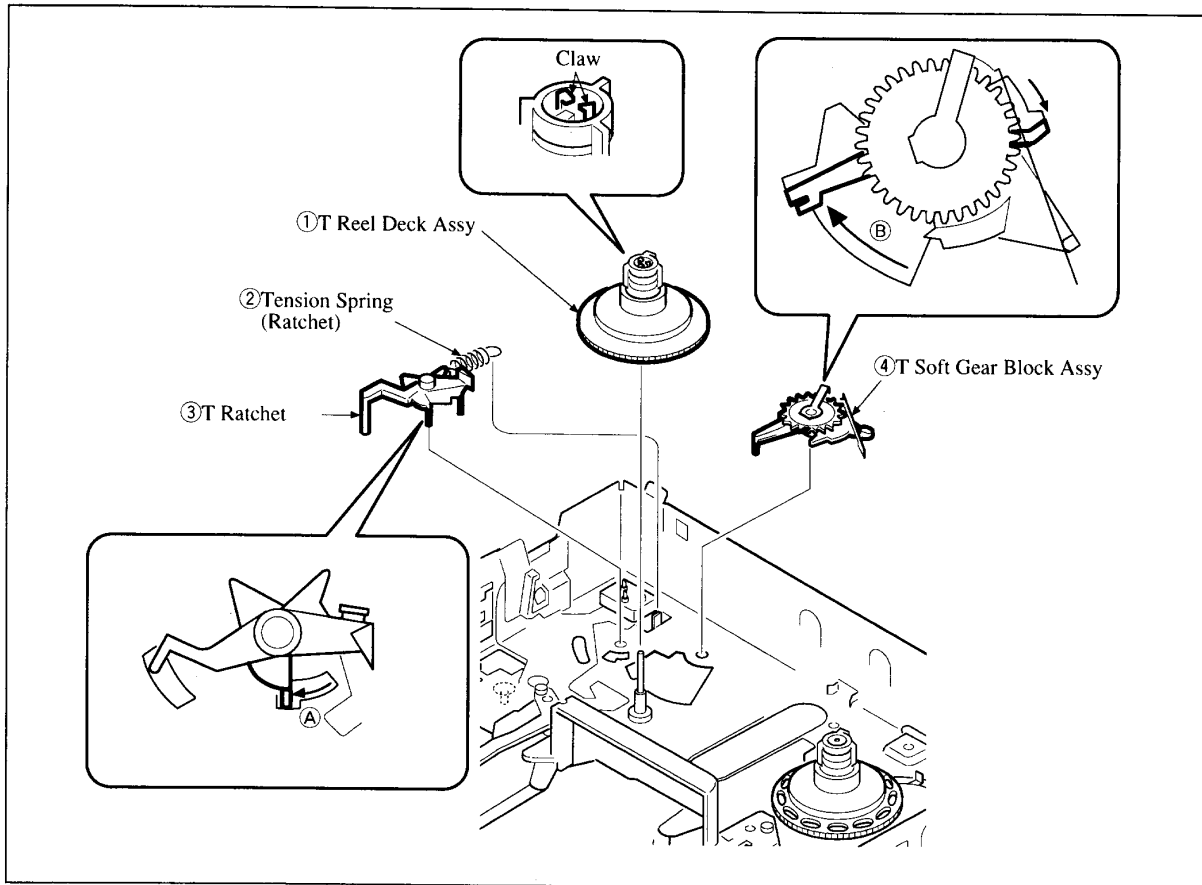


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the Tension Spring (TG1) ① from the LS Chassis.
- 4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ from RVS Arm.
- 5) Release the S Ratchet ⑥ in the direction of the arrow (A) and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
- 6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
- 7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
- 8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
- 9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
- 10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

- 1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
- 2) When attaching the Tension Regulator Band Assy, take care not to bend it.
- 3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
- 4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
- 5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
- 6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
- 7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
- 8) Confirm that the claw of the S Reel Deck Assy is not deformed.

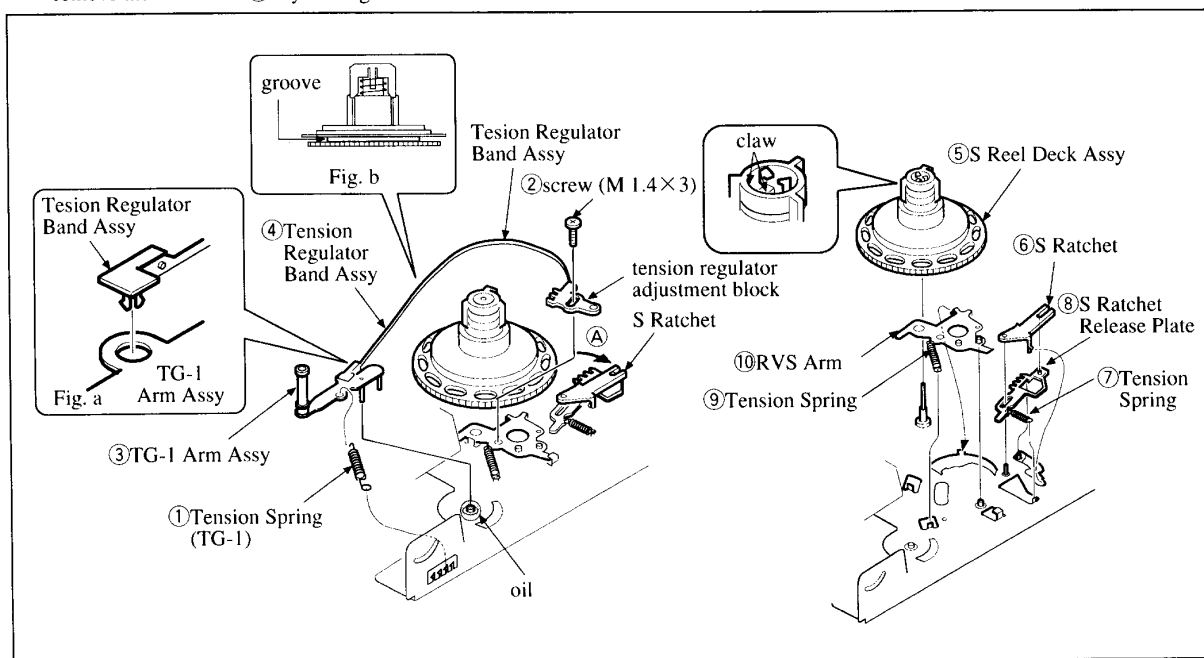


Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the LS Chassis Block Assy referring to section 3-5.
- 4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out (A) of the LS Chassis.
- 5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
- 6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
- 7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
- 8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of (A) then (B).

2. Precautions During Re-Assembly

- 1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
- 2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
- 3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

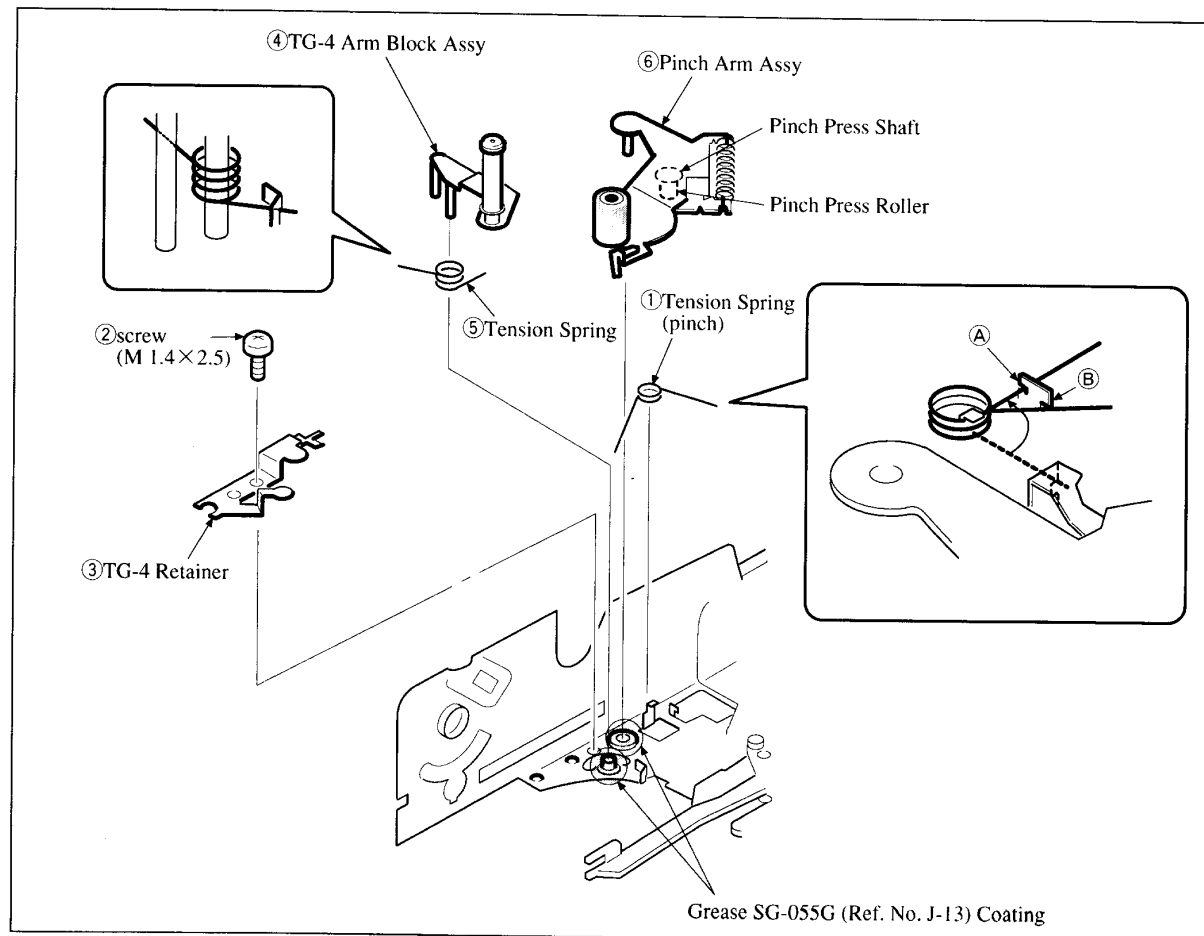


Fig. 13

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide (Refer to Fig. 14)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the LS Chassis Block Assy referring to section 3-5.
- 4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.

In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.

- 5) Remove the LS Guide Cover ③.
- 6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)

- 7) Remove the Lid Open ⑤ in the direction of the arrow ③ while pushing ④ portion.
- 8) Remove the EJ Arm ⑥. (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

- 1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
- 2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
- 3) If any mark is not written when removing the LS Cam Plate ②, adjust and attach it as shown in Fig. b.

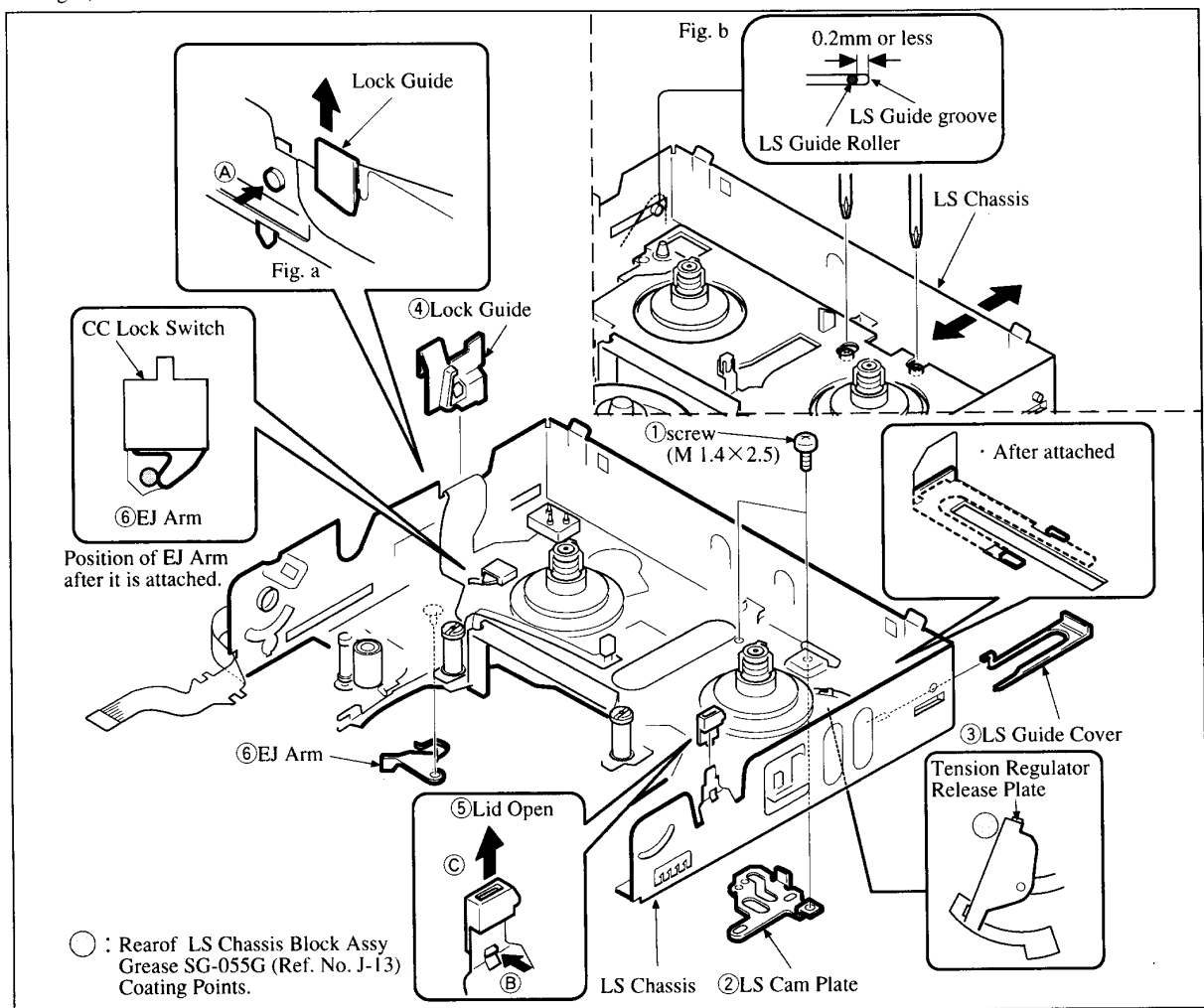


Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 3) Remove the LS Chassis Block Assy referring to section 3-5.
- 4) While pushing the GB Stoppers (S) and (T) in the direction of arrow ①, press the guide arm in the direction of the arrow ②, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow ③ respectively, and remove them.
- 5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
- 6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

- 1) Pay attention not to deform the Guide Rail.
- 2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
- 3) Pay attention not to deform the Stoppers (S) and (T).
- 4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
- 5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

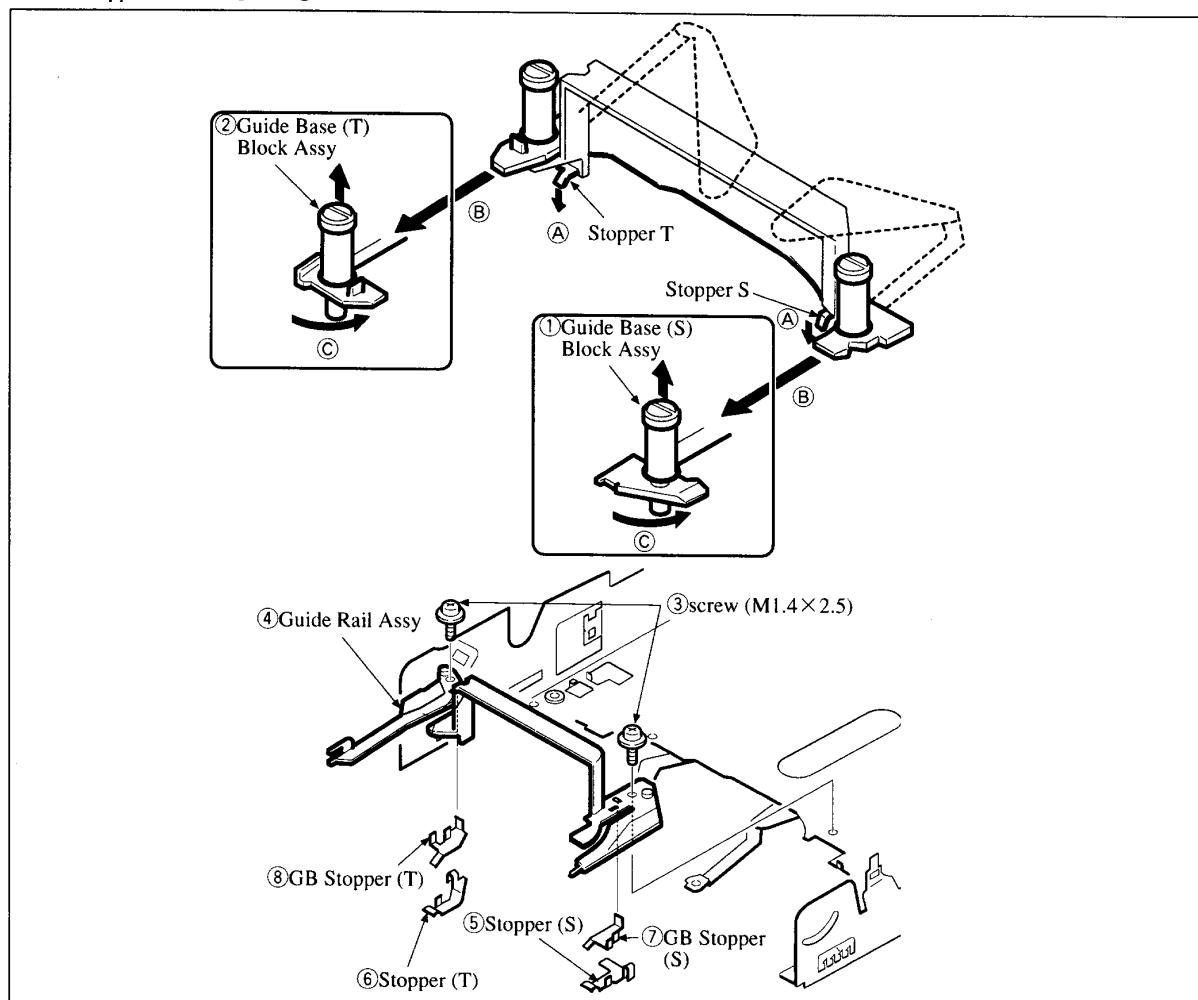


Fig. 15

• PARTS CONSTITUTING THE MECHANISM CHASSIS

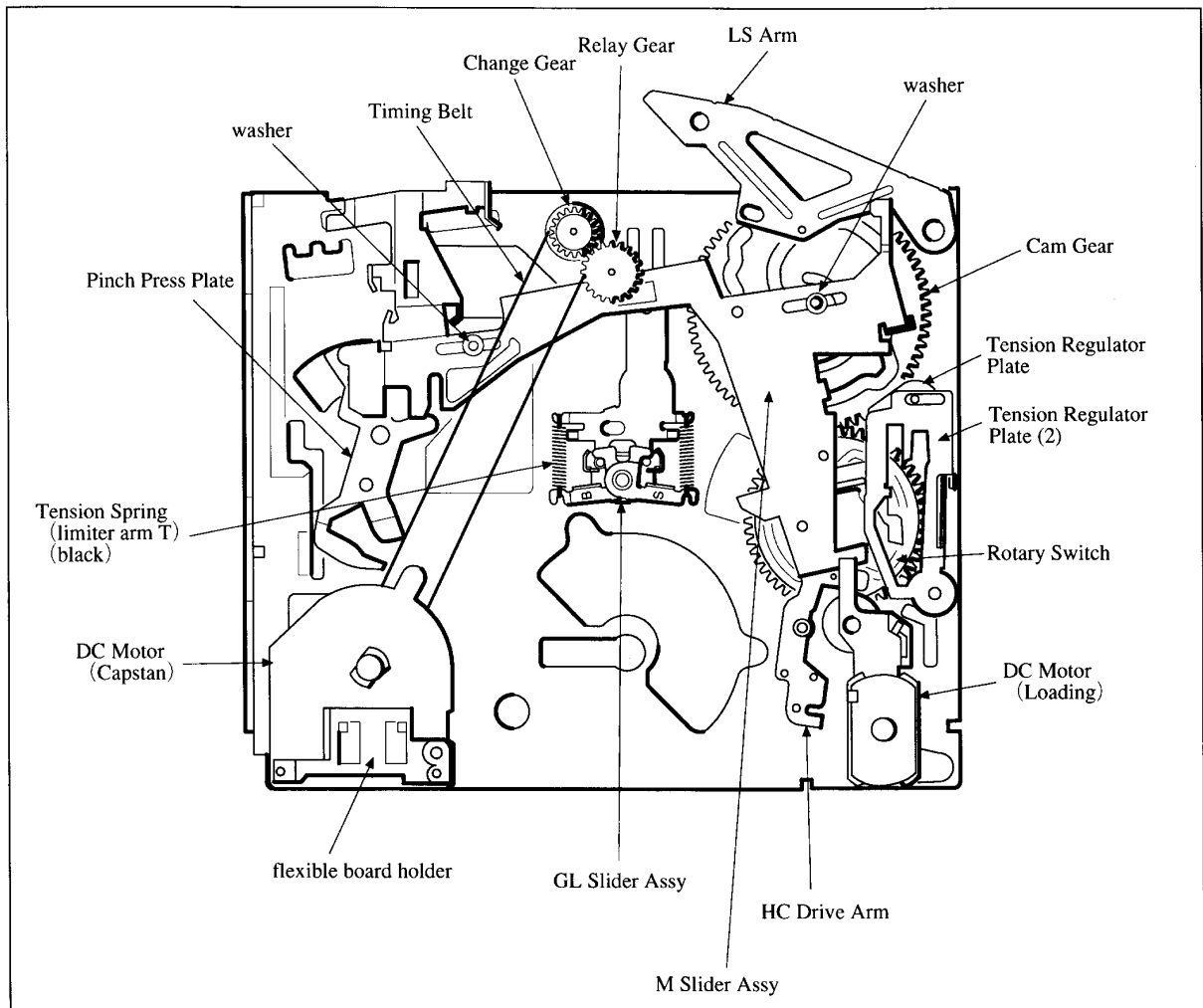


Fig.16

3-11. DC Motor Assy (Loading) (Refer to Fig. 17)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove soldering from the (A) portion.
- 8) Remove the screw (M 1.4×2.5) (1) and remove the Motor Holder Block Assy (2) from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow (B).
- 9) Remove the Motor Shield (3) in the direction of the arrow (C) (by opening the two ★ star marked points).
- 10) Release the claw on top of the Motor Holder (5) and remove the DC Motor Assy (4) in the direction of the arrow (D).
- 11) Remove the Motor Holder Sleeve (6), Gear A (7) and Worm Shaft (8) in this order.

2. Precautions During Re-Assembly

- 1) Before attaching the Gear A (6), coat the Retainer Shaft (E) with grease SG-055G (Ref. No. J-13).
- 2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
- 3) The HC Drive Arm is easy to drop. Confirm that it is attached referring to Fig. 19.

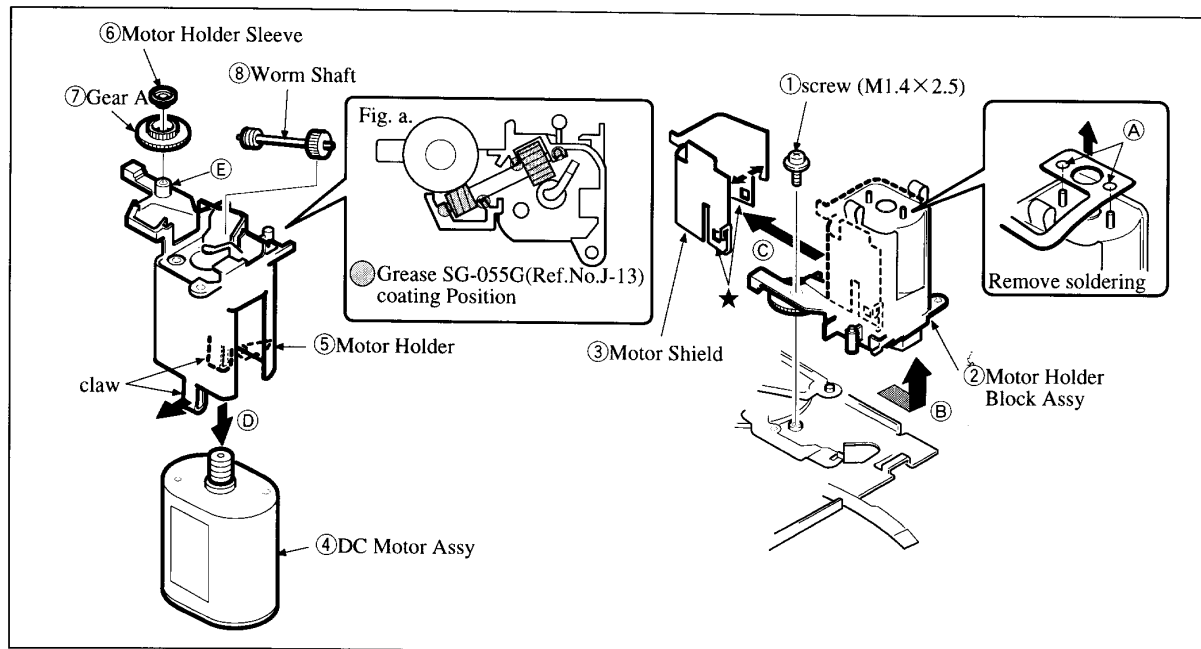


Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC motor referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2 ①.
- 9) Remove the Relay Gear ②.
- 10) Remove the two washers ③. Remove the M Slider Assy ④.

At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

- 1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft ① on the back of the M Slider Assy, the Pinch Press Plate Shaft ② and the mechanism chassis M Slider Axis ③ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
- 2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
- 3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk * Marked portion of Fig. a)
- 4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis ④ with grease SG-055G (Ref. No. J-13).

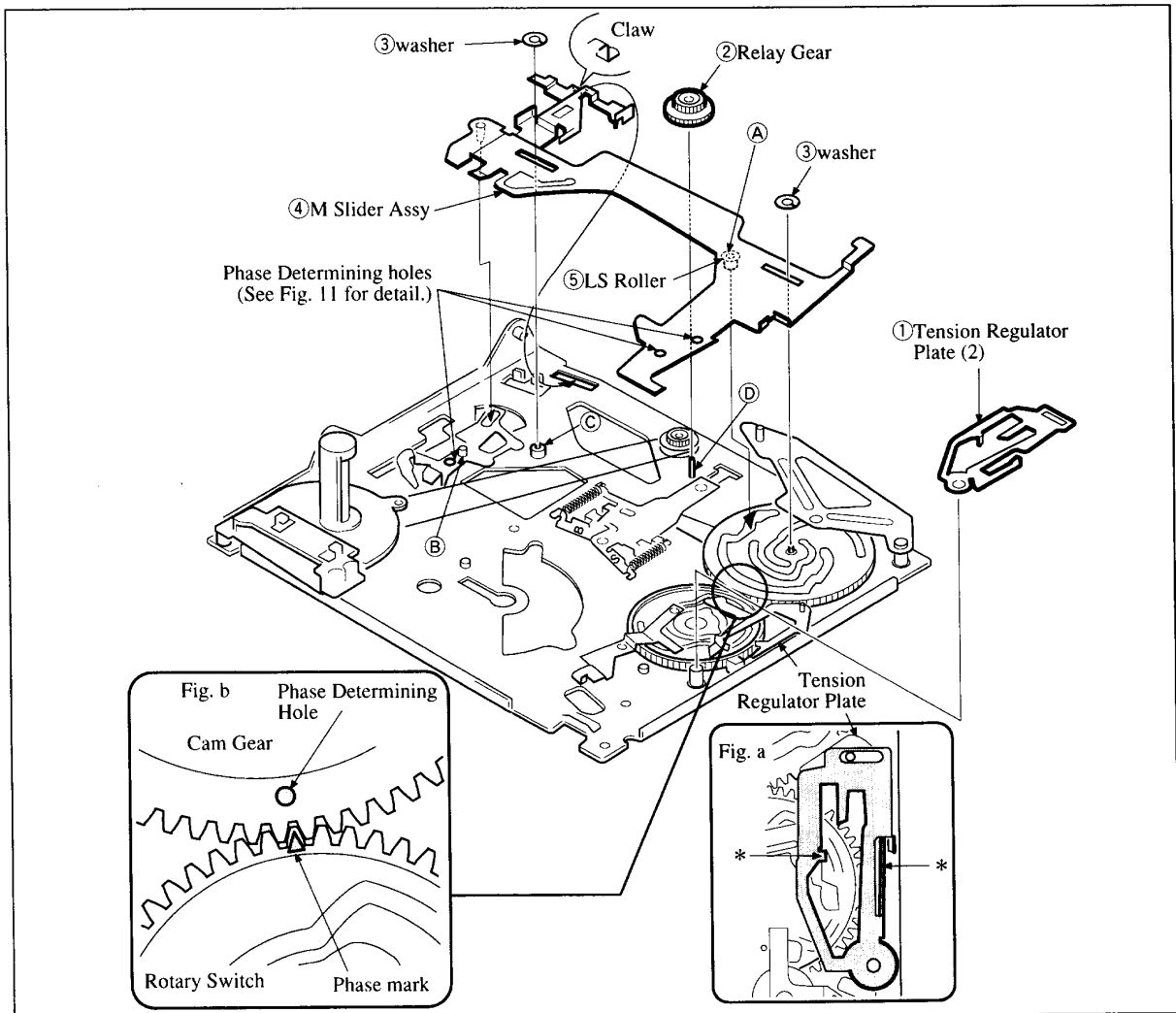


Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
- 10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

- 1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
- 2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
- 3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft (A). If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
- 4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
- 5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

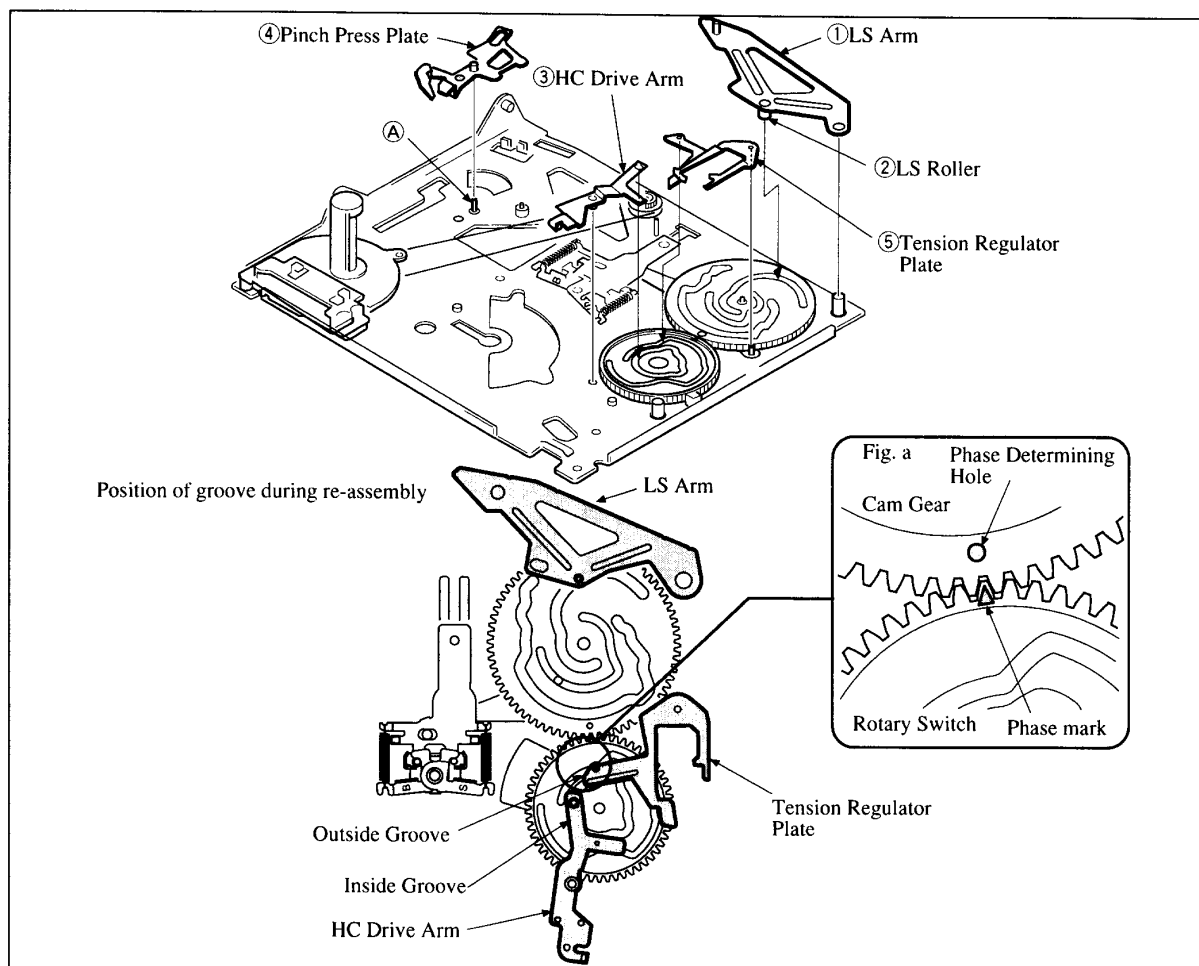


Fig. 19
— 23 —

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
- 10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

- 1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole ① on the mechanism chassis, and align the GL Arm's phase mark ② until it agrees with the phase-determining hole ① on the mechanism chassis. Coat the mechanism's chassis Gear Axis ① with grease SG-055G (Ref. No. J-13).
- 2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
- 3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

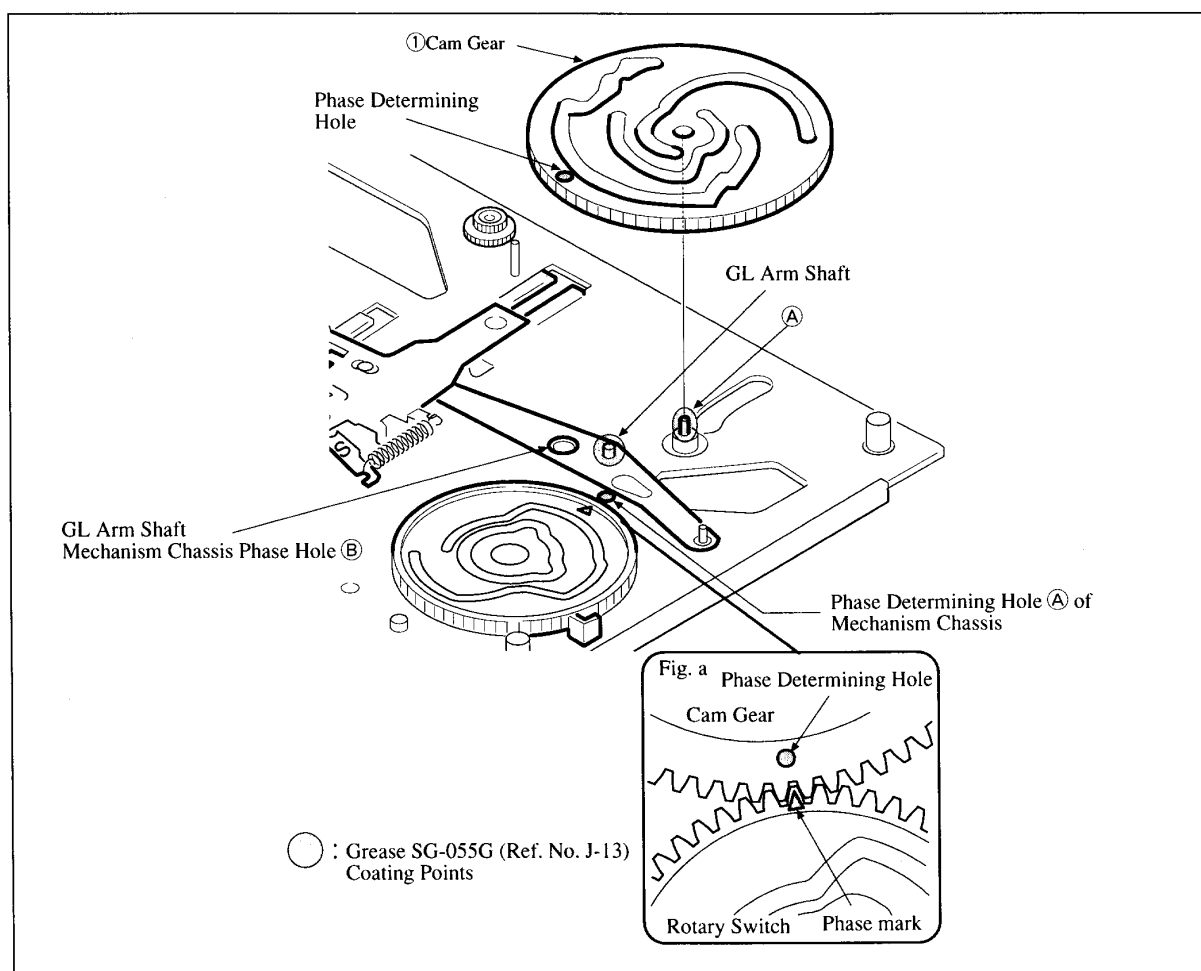


Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
- 10) Remove the Cam Gear referring to section 3-14.
- 11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow ④.
- 12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

- 1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
- 2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
- 3) Coat the four points ⑤ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
- 4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

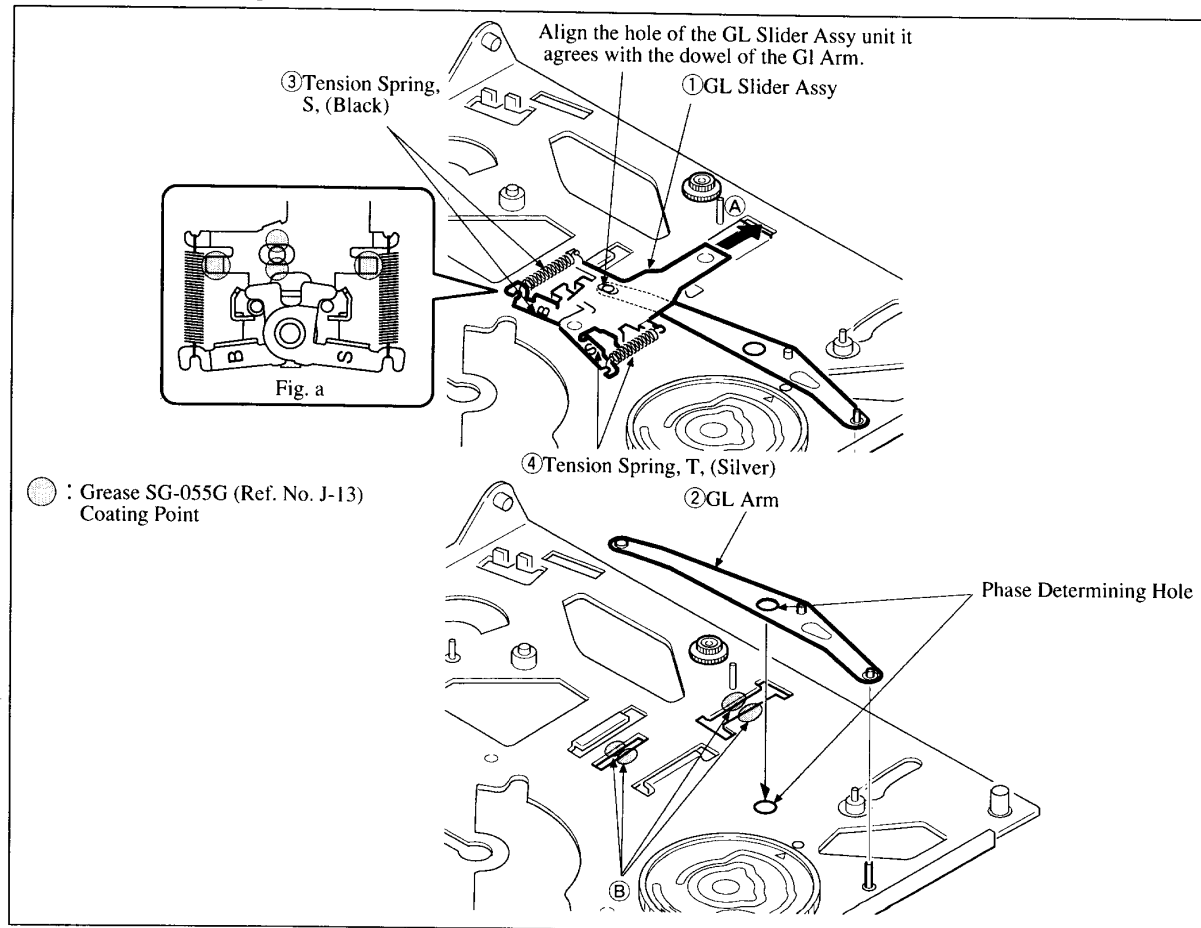


Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
- 10) Remove the Cam Gear referring to section 3-14.
- 11) Remove soldering the portion ① on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
- 12) While lifting up the portion ② about 1 mm (pay attention not to break it), hold the portion ③ and turn it in the direction of the arrow ④ to remove the Rotary Switch.

2. Precautions During Re-Assembly

- 1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion ② dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

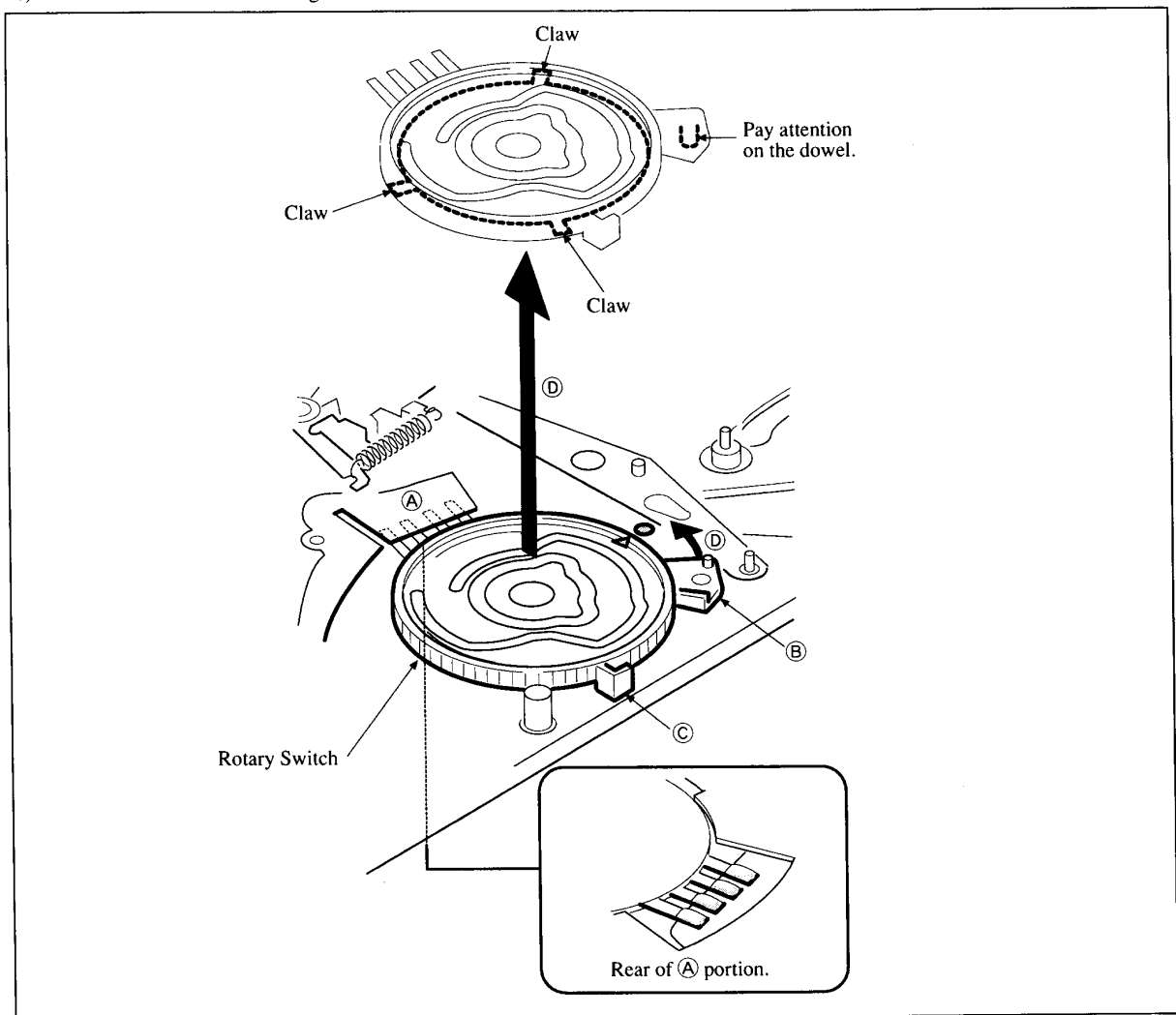


Fig. 22

3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

- 1) Remove the Cassette Compartment Block Assy referring to section 1-1.
- 2) Remove the HC Roller Block Assy referring to section 3-1.
- 3) Remove the Drum Assy referring to section 3-2.
- 4) Remove the Drum Base Block Assy referring to section 3-3.
- 5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
- 6) Remove the LS Chassis Block Assy referring to section 3-5.
- 7) Remove the DC Motor Assy referring to section 3-11.
- 8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
- 9) Remove the Pinch Press Plate referring to section 3-13.
- 10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
- 11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
- 12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

- 1) Confirm that the timing belt is not twisted.
- 2) Do not touch the capstan with bare hand.
- 3) Lubricate the mechanism chassis's Change Gear shaft ①.
- 4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.

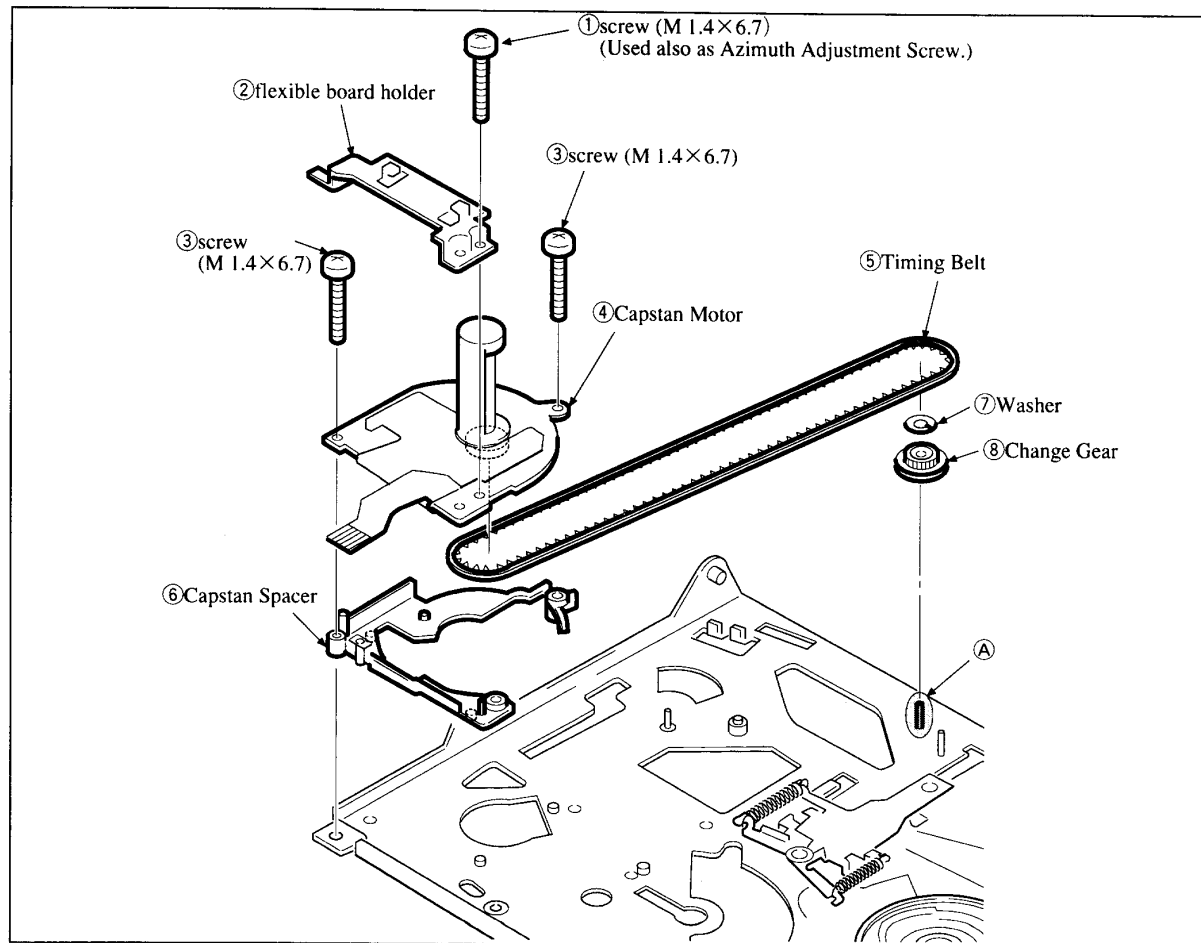
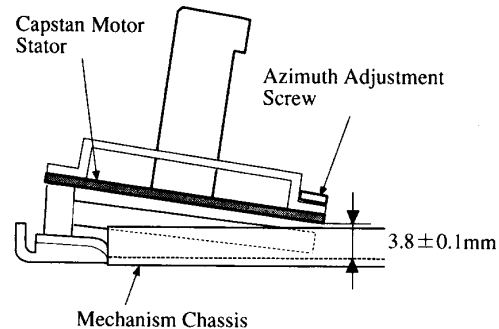


Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

- 1) Insert a cassette Tape and run the Tape in PB mode.
- 2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
- 3) If not, proceed to step 4).
- 4) Loosen the screw ① (M 1.4×3).
- 5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow (A). If it is located outside, move it in the direction of the arrow (B).
- 6) Tighten the screw ① (M 1.4×3).

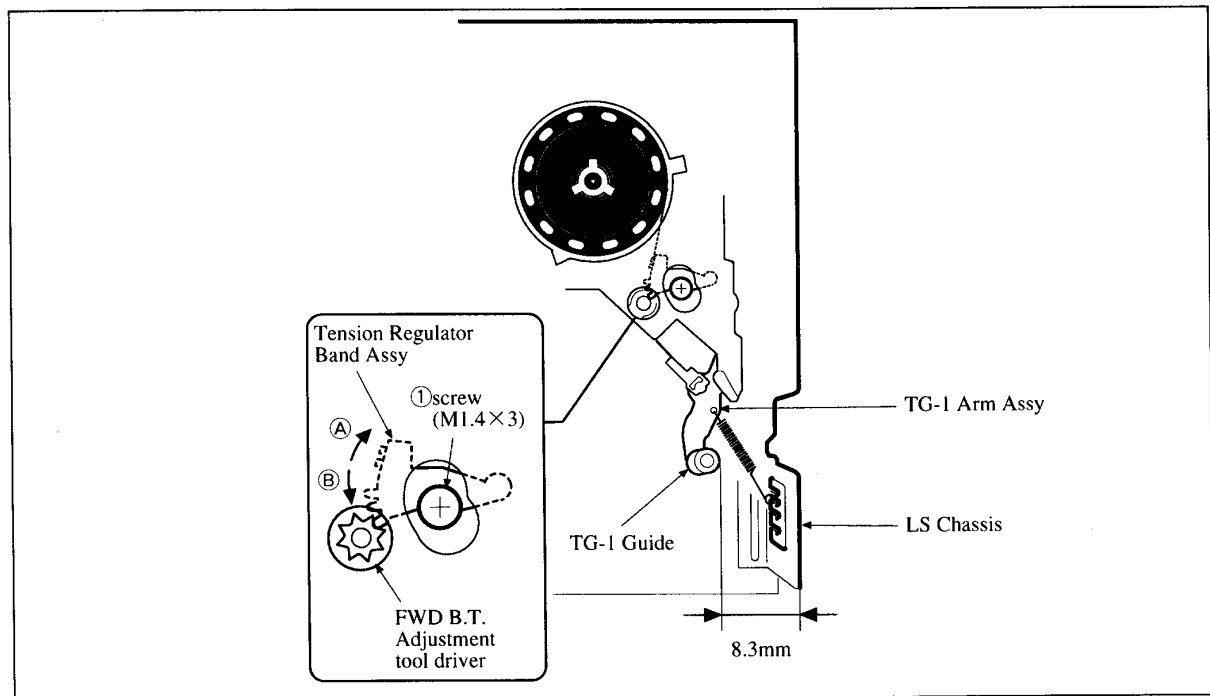


Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

- 1) Insert the torque measurement cassette to the machine.
- 2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
- 3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side (A).
- 4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side (B).

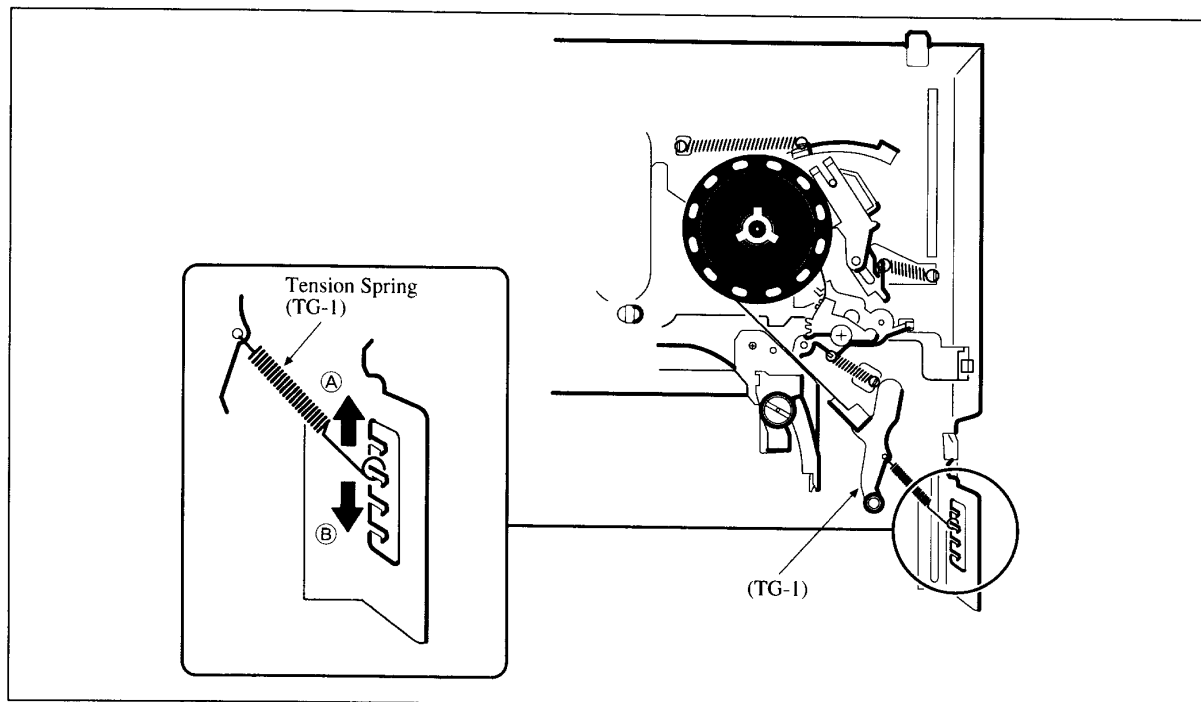


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose: Adjusts the head linearity.
Adjustment Error: Noise appears on top and bottom of display when playing back the tape recorded by other machines.

4-1. Preparations for Adjustments

- 1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
- 2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
- 3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
- 4) Connect an oscilloscope.
 CH1: Test connector PB RF terminal
 External trigger: Test connector PB SWP terminal
- 5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
- 6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
 If it not flat, perform the following section 4-2 until it is flat.
- 7) After completing the adjustment, release the PATH mode (Track Shift mode)*.

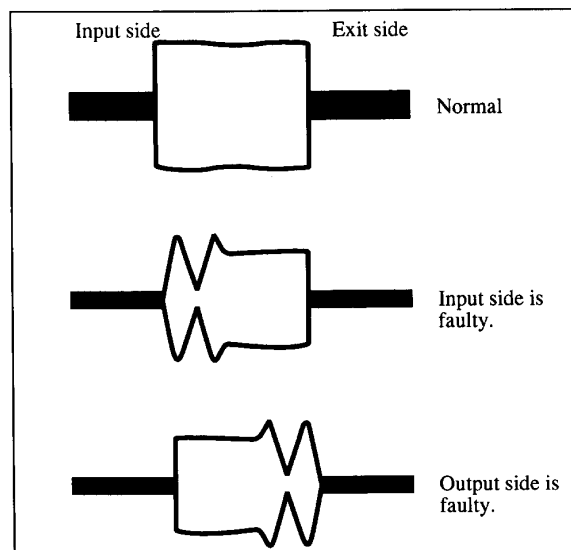


Fig. 26

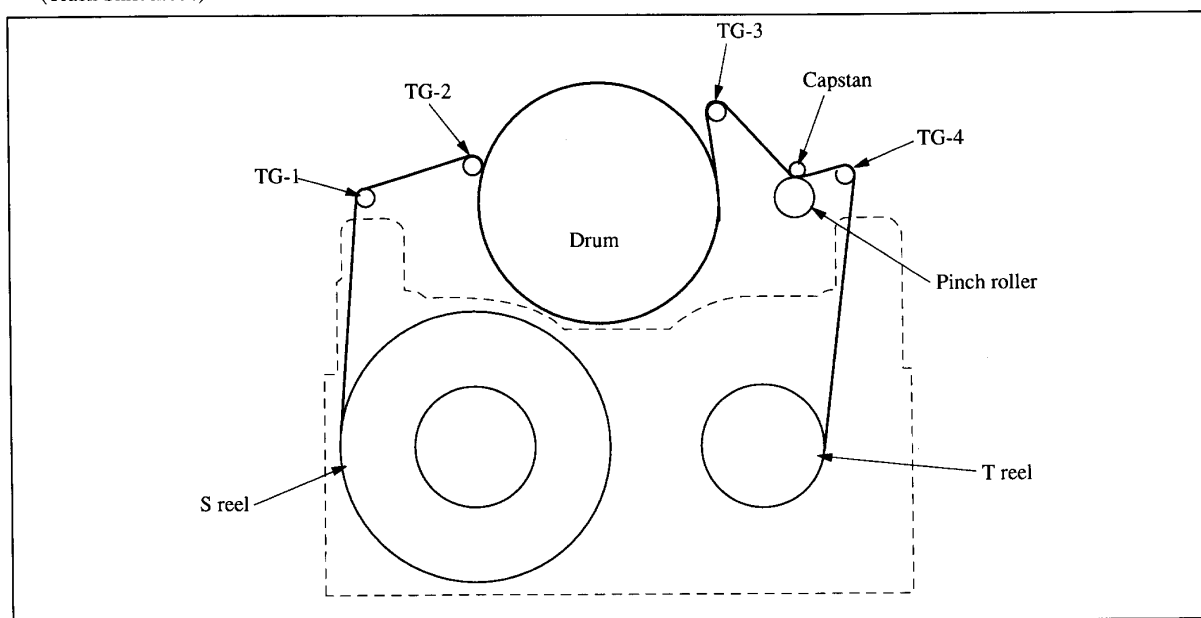


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exiting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

- 1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
- 2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
- 3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

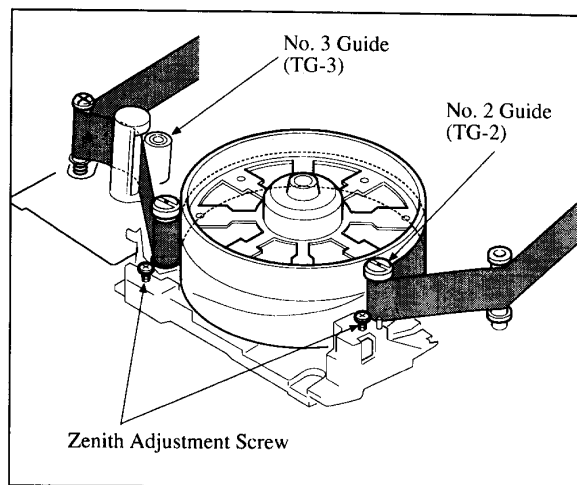


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

- 1) Playback a tape in REV mode.
- 2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
- 3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

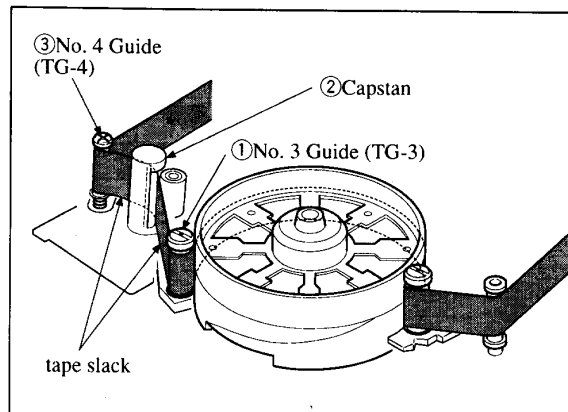


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

- 1) Playback the tracking alignment tape in REV mode.
Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
- 2) Playback the tracking alignment tape in CUE mode.
Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

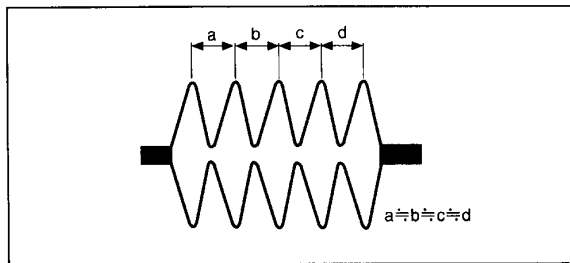


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

- 1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
- 2) Confirm that the minimum amplitude (E_{MIN}) of the RF waveform is 65 % or more of the maximum amplitude (E_{MAX}). (Refer to Fig. 32)
- 3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

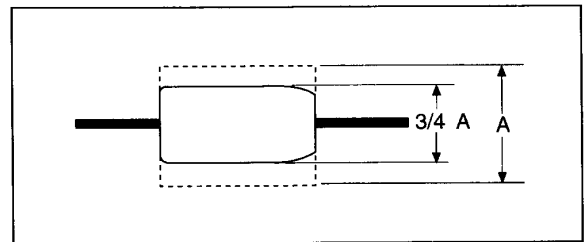


Fig. 31

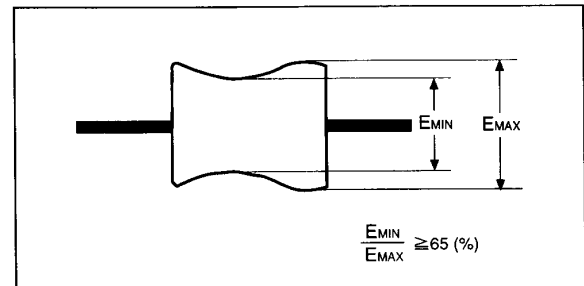


Fig. 32

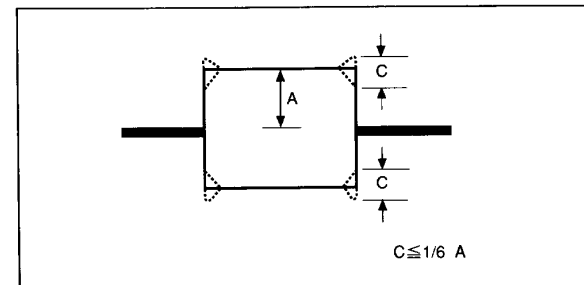


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

- 1) Playback the tracking alignment tape.
- 2) Turn OFF the Track Shift mode.
- 3) Eject the tape once, insert and load the tape.
- 4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
- 5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
- 6) Repeat the check items 3) to 5) again.

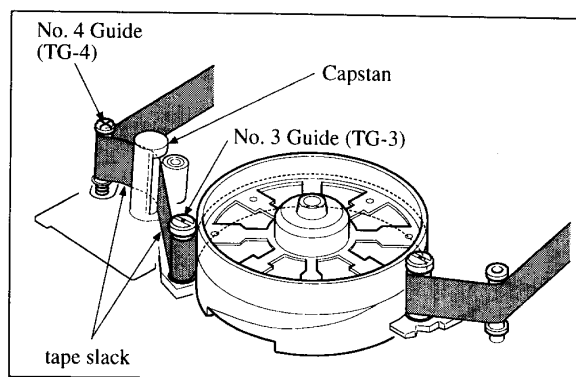


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

- 1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
- 2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

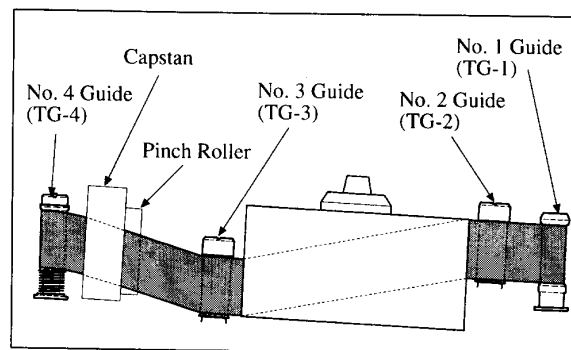
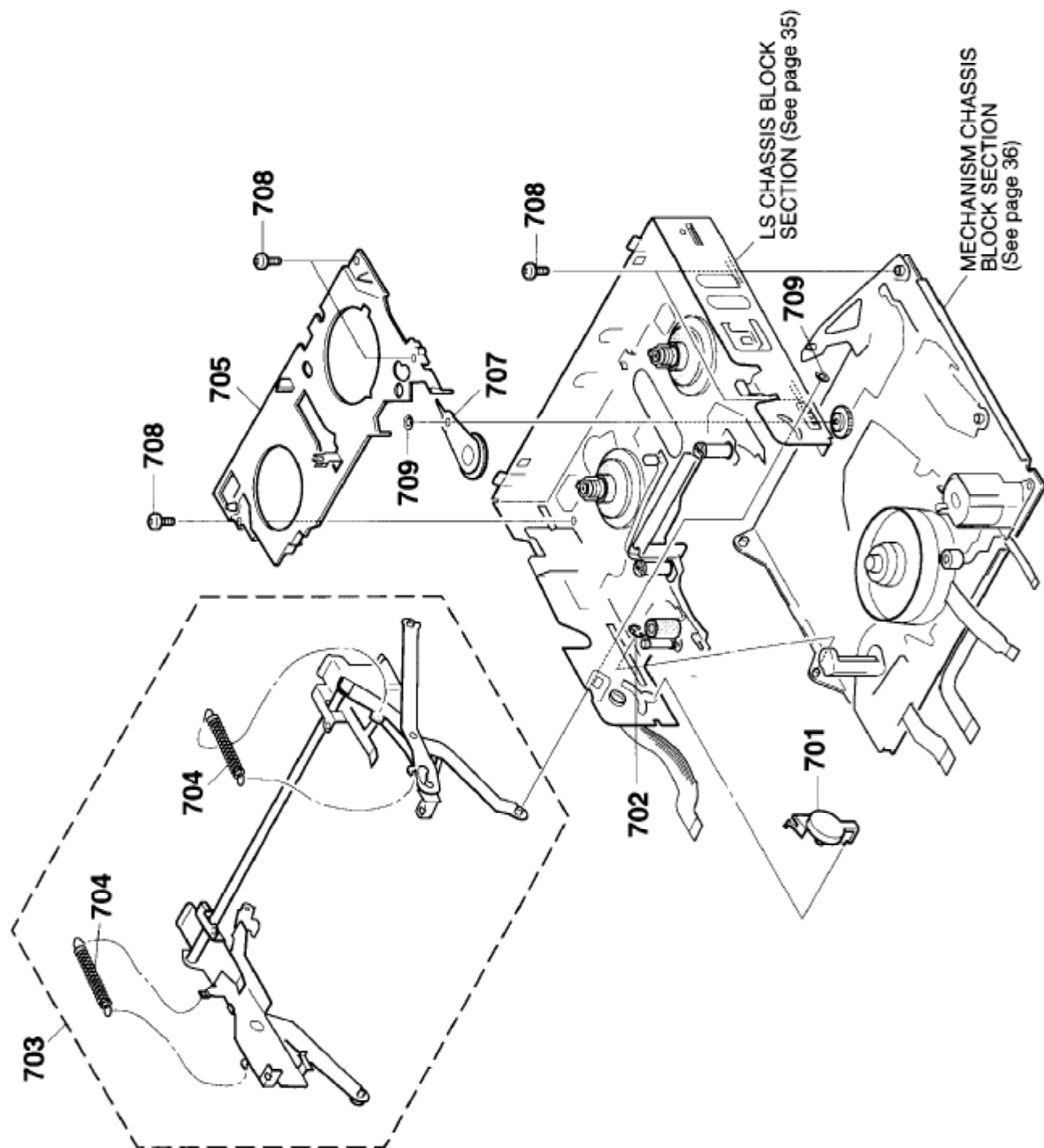
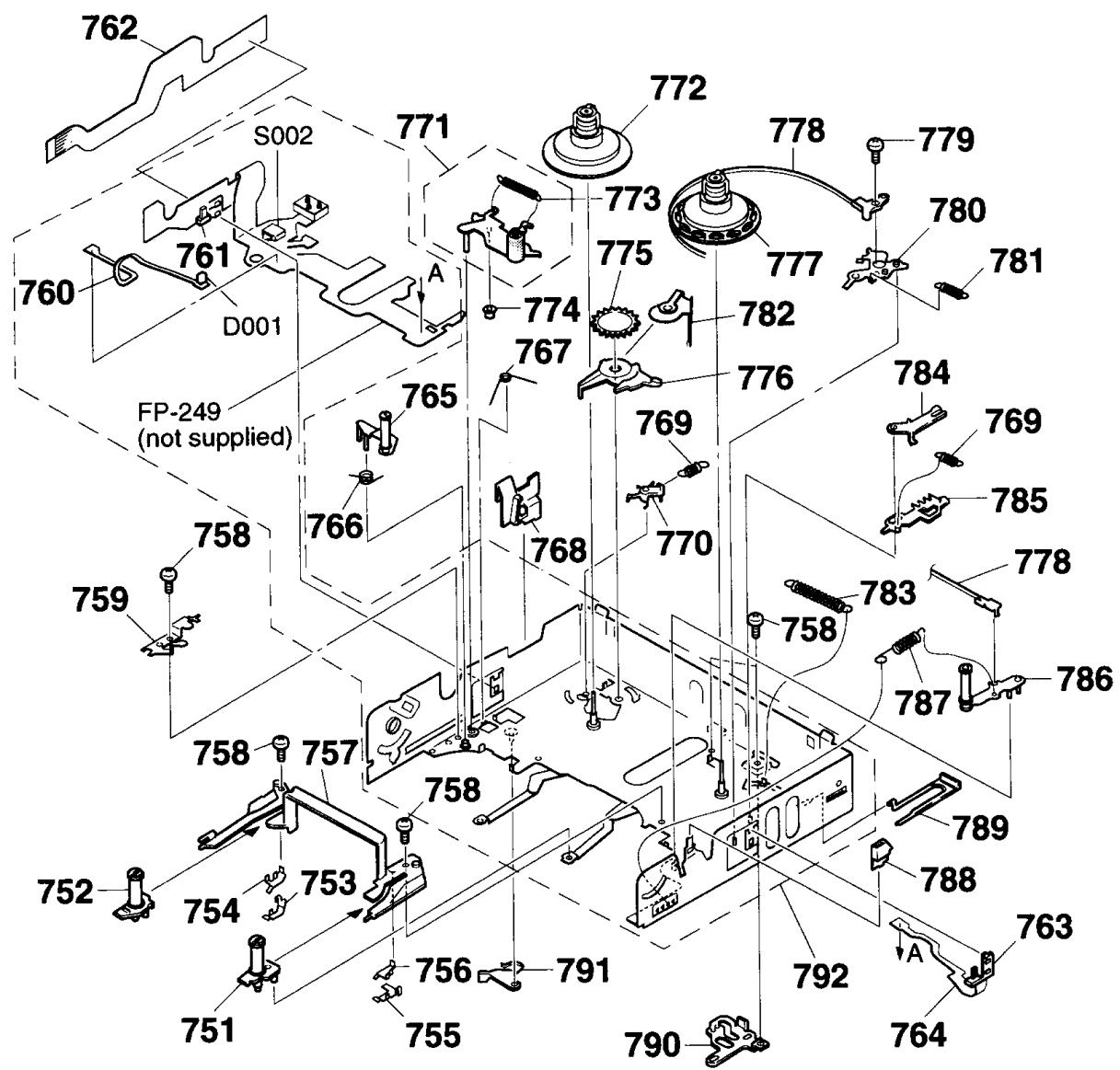


Fig. 35

5-1. Cassette Compartment Block Section



5-2. LS Chassis Block Section



5-3. Mechanism Chassis Block Section

